

**AN ANALYSIS OF JAPANESE COKING COAL
PROCUREMENT POLICIES: THE
CANADIAN AND AUSTRALIAN EXPERIENCE**

DAVID L. ANDERSON

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THE CANADIAN AND AUSTRALIAN EXPERIENCE**

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Foreword

The initial impetus for this study arose during 1980-81 when I was a Visiting Fellow at the Centre for Resource and Environmental Studies, Australian National University. During that time I was influenced by two factors: the frequent articles in the Australian financial press on the subject of negotiations between the Australian coking coal exporters and the Japanese steel mills; and the theoretical work of Ben Smith on resource bargaining models. In particular, I was struck by the fact that these issues, which seemed to me to be of critical importance to any raw material exporting nation, were not being addressed in Canada.

Between 1981 and when I commenced this study in late 1984, the Japanese procurement strategy started to attract some interest in British Columbia. This was due to the controversy surrounding the massive northeast British Columbia coal project. However, this debate was regionally focused; furthermore, there was very little discussion of the motives and mechanisms employed by the Japanese steel mills in the coking coal market. In addition, discussion of appropriate policy responses by Canadian governments was also absent.

All of these factors interacted to stimulate my interest in undertaking research on the Japanese procurement strategy for coking coal, with particular emphasis on its impact on Australian and Canadian suppliers. Furthermore, the analysis, which covers events up to June 1986, addresses policy responses available to Australian and Canadian governments to counteract the adverse effects of the Japanese purchasing scheme.

It should be noted that although this study represents original work by the author, the manuscript has served as the basis for journal articles published by Raw Materials Report, Materials and Society, and Canadian Public Policy. In particular earlier versions of chapters two, three, four, and six have, in part, been published in the above noted journals.

The study would not have been possible without the generous assistance provided by many observers of the supply-side of the international coking coal trade. In particular, the contribution of several individuals warrants explicit recognition: Jim Alysworth, Nancy Mitchell, John Tysoe, Warren Bennett, Hugh Courtney, Brian

Mackenzie, and Ben Smith. Special mention must be made of the invaluable contribution provided by Donald W. Barnett, Macquarie University, who provided me with a crash course on the economics and technology of coal mining, and also acted as an advisor and critic throughout the duration of this study.

The draft document received meticulous scrutiny from Margot Wojciechowski and from anonymous referees. I gratefully acknowledge their comments and suggestions, and, in addition, I wish to thank Donna Beaubien for preparing the manuscript for publication. Notwithstanding the assistance received from the above noted individuals, the author accepts sole responsibility for all errors and omissions. Furthermore, the views presented are those of the author, and do not necessarily represent the opinions of the Centre for Resource Studies or its sponsors.

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Summary

The purpose of this study is to assess the structure and impact of the Japanese Coking Coal Procurement System on suppliers, especially those located in Australia and Canada. Furthermore, the study explores policy options available to producing nations to negate the adverse effects of collective buying practices on their economies.

This purchasing system helped the Japanese steel mills attain their twin objectives of additional security of supply and lower coking coal input costs. Although economic theory implies that these objectives are in conflict with one another, the Japanese procurement scheme is rather remarkable in that it appears to have allowed the steel mills to attain their goals in a mutually reinforcing manner. This outcome is due, in part, to an unexpected decline in demand for steel, and to the adoption of strategies which led to the diversification of supply and the construction of additional productive capacity. Each of these factors acted to increase competition on the supply side of the market.

Unfortunately, the Japanese procurement strategy has been a mixed blessing for Australian and Canadian producers. It has fostered developments which might not otherwise have occurred; on the other hand, the financial wisdom of recent investments is increasingly suspect. Furthermore, it has led to public pressure for collective selling responses to ensure that the owners of the resource, the citizens of Australia and Canada, receive adequate compensation for exploitation of their nonrenewable resources.

As a result of the depressed state of the coking coal market and the likelihood that recent public and private investments in coal infrastructure and mines are unlikely to ever earn a reasonable rate of return, the search for culprits has increasingly focused on the Japanese steel mills. It is sometimes alleged that their coordinated purchasing schemes, involving designated purchasing agents, long-term contracts, soft financing, and an integrated transportation network, works to the detriment of suppliers. Some observers go further: they suggest that the Japanese deliberately set out to generate a massive over-supply situation. According to

the critics, the best way for exporters to redress the above situation is for them to also adopt collective action.

The findings of this study imply that the Japanese steel mills appear to exercise oligopsonistic power over the Pacific Rim coking coal trade. They have utilized this bargaining advantage to achieve their twin objectives of increased security of supply and reduced raw material costs. However, it must be stressed that part of their success can be traced to the unexpected decline in the market for coking coal beginning in the early 1980s, at the very time a number of new projects were being developed in both Australia and Canada.

Despite the acknowledged presence of oligopsonistic forces on the demand side of the market, the analysis shows that, aside from some minor initiatives, collective selling practices are probably doomed to failure. The primary reason for this pessimistic statement is that, in the medium to longer term, significant structural and technological changes are likely to occur in the Japanese steel industry. Not only is demand for steel static on a global basis, it is expected to remain so in the foreseeable future. More importantly, Japanese steel production is expected to exhibit a slow but inexorable decline over time as Japanese producers lose their competitive advantage to producers in the newly industrializing nations. Equally important is the widespread view that, even if Japanese steel production were to remain at its present level, their demand for coking coal would continue to decline due to the on going introduction of coking-coal-saving technologies.

In conclusion, this study suggests that, although the coking coal market is characterized by oligopsony, the nature of the market, in particular the potential for significant technological change, virtually precludes the introduction of effective anti-oligopsony policies. Nevertheless, the study also serves to draw attention to a policy issue which has largely escaped serious public discussion in market economies. In their increasing desire to deregulate markets and to rely on the private sector to generate growth, governments should not lose sight of the fact that some export markets may not be conducive to individual selling activities. That is, collective action may, in certain situations, be the preferred strategy to follow if market oriented economies are to maximize the economic benefits available from the exploitation of their nonrenewable resource base. However, this study suggests that the coking coal market, as it now exists, should not be a candidate for such action.

Resume

L'objectif de cette étude est d'évaluer la structure et l'impact du système japonais d'obtention de charbon à coke sur les approvisionneurs, notamment sur ceux qui se trouvent en Australie et au Canada. De plus, l'étude examine les diverses politiques que peuvent adopter les nations productrices pour lutter contre les effets négatifs qu'ont les méthodes d'achats collectifs sur leurs économies.

Ce système d'achats a aidé les aciéries japonaises à atteindre leur double objectif: une plus grande sécurité de l'approvisionnement et une diminution du coût des facteurs de production du charbon à coke. Selon la théorie économique ces deux objectifs sont incompatibles et pourtant le système japonais d'approvisionnement a ceci de remarquable qu'il semble avoir permis aux aciéries d'atteindre leurs objectifs de façon à ce qu'ils se soutiennent réciproquement. Ce résultat provient en partie du fait qu'il y a eu une chute inattendue de la demande pour l'acier et que l'on a adopté des stratégies qui ont mené à la diversification de l'approvisionnement et à une capacité de production accrue. Chacun de ces facteurs a eu comme effet d'augmenter la concurrence du côté de l'offre.

Pour les producteurs australiens et canadiens, la stratégie japonaise d'approvisionnement présente malheureusement des avantages mitigés. On constate en effet des faits nouveaux qui ne se seraient peut-être pas produits autrement: d'une part on commence à se demander maintenant si certains investissements récents ont été bien avisés; d'autre part des pressions se font sentir pour l'adoption de méthodes de vente collective qui assureraient que les propriétaires de la ressource, les habitants de l'Australie et du Canada, soient rémunérés suffisamment pour l'exploitation de leurs ressources non renouvelables.

Comme le marché du charbon à coke est déprimé et qu'il est probable que certains investissements privés et publics dans l'infrastructure du charbon et dans les houillères ne seront pas rentables, on tend de plus en plus à chercher les coupables du côté des aciéries japonaises. On prétend parfois que leurs systèmes d'achats coordonnés, avec des agents d'achat désignés, de contrats à long terme, un financement mou et un

réseau de transport intégré, est défavorable aux approvisionneurs. Certains observateurs vont jusqu'à suggérer que les japonais ont délibérément essayé de créer une situation de surapprovisionnement massif. Selon ces critiques, la meilleure façon pour les exportateurs de remédier à cette situation est d'agir collectivement eux aussi.

On constate dans cette étude que les aciéries japonaises semblent exercer un pouvoir oligopsonistique sur le commerce du charbon à coke dans les Etats qui bordent le Pacifique. Cette manière de négocier les a aidées à atteindre leur double objectif, c'est-à-dire une plus grande sécurité de l'approvisionnement et une diminution des coûts de la matière première. Il faut cependant souligner que leur succès peut être attribué en partie à la baisse inattendue de la demande pour le charbon à coke au début des années 80 au moment même où on mettait sur pied un certain nombre de nouveaux projets aussi bien en Australie qu'au Canada.

Malgré la présence reconnue de forces oligopsonistiques du côté de la demande, l'analyse démontre que, quelques initiatives peu importantes mise à part, les méthodes de vente collective sont probablement vouées à l'échec. Cette affirmation pessimiste se base principalement sur le fait qu'à moyen et à long termes des changements structuraux et technologiques considérables se produiront dans l'industrie japonaise de l'acier. Non seulement la demande pour l'acier est statique au niveau global, mais on s'attend à ce que cette situation reste inchangée dans les années à venir. Et qui plus est, on prévoit également que la production japonaise d'acier baisse lentement mais inexorablement au fur et à mesure que les producteurs japonais deviendront moins concurrentiels que les nations nouvellement industrialisées. Il est aussi important de noter que même si la production japonaise se maintenait au niveau actuel, la demande pour le charbon à coke continuerait à baisser à cause de la mise au point constante de technologies nouvelles permettant de conserver le charbon à coke.

En conclusion cette étude suggère que, bien que le marché du charbon à coke soit caractérisé par l'oligopsonie, la nature du marché, et surtout le potentiel en grands changements technologiques, exclut pratiquement toute introduction de politiques anti-oligopsonistiques efficaces. Néanmoins l'étude cherche aussi à attirer l'attention sur une question de politique qui n'a presque jamais été débattue publiquement dans les économies du marché. Dans leur désir croissant de déréglementer les marchés et de laisser au secteur privé la responsabilité de stimuler

la croissance, les gouvernements ne devraient pas perdre de vue le fait que certains marchés d'exportation ne sont pas favorables aux méthodes de vente individuelle. Ce qui veut dire qu'une action collective pourra dans certains cas être préférable si les économies orientées vers les marchés doivent maximiser les profits économiques découlant de l'exploitation de leur base de ressources non renouvelables. Cette étude suggère cependant que le marché du charbon à coke tel qu'il existe aujourd'hui ne devrait pas envisager une telle initiative.

1. Introduction

Purpose

The primary objective of this study is to assess the impact of the coordinated coking coal procurement system of the Japanese steel-mills on suppliers in Australia and Canada, and to evaluate the policy responses utilized and contemplated by their respective governments. The analysis covers events from the late 1940s up to June 1986. More specifically, this study explores the validity of the widespread allegation that the Japanese steel mills (JSM) act as oligopsonists in the coking coal market. In general terms, oligopsony can be defined as the "control of a commodity or service in a given market by a small number of companies or suppliers".¹ It can also be portrayed as the use of power by buyers to achieve lower prices than would be forthcoming from a competitive market. In addition to a net loss in global economic welfare, it results in a redistribution of the available surplus from producers to consumers.²

In most market economies, oligopsonistic issues have received only a fraction of the attention accorded to supply-side imperfections such as oligopoly and monopoly. This is probably attributable to the fact that according to the competitive model, the consumer is sovereign; thus, policies which result in a redistribution of wealth from producers to consumers are usually perceived to be "good". Nevertheless, if producers and consumers reside in different countries, oligopsony is normally viewed as "bad". In this case, the residents of the producing nation lose and those of the consuming nation gain, relative to the distribution that would be forthcoming from a perfectly competitive solution. Thus, transfers of wealth which would be classified as "pecuniary" if both parties were resident within the same decision-making unit

1 Webster's New World Dictionary, College Edition (Toronto: Nelson, Foster and Scott, Ltd., 1966), p. 1023.

2 For details, see Ben Smith, "Bilateral Monopoly and Export Price Bargaining in the Resources Goods Trade", Economic Record, March 1977, pp. 30-50.

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become real costs to society when the transaction occurs across national boundaries.

Although export markets tend to be roughly competitive, certain exceptions arise. In particular, trade patterns of commodities exhibiting a high weight-to-value ratio are heavily influenced by transportation costs which may give rise to the development of strong regional markets. If the consumers therein are highly organized and the producers fragmented, the latter may end up with very little of the total "gains from trade"

Institutional Setting

This study attempts to explore the validity and relevance of the widespread allegation that the Japanese steel mills, through the use of collective decision-making practices, exploit coking coal producers. For example, one of the primary instruments for such exploitation is said to be the coordinated purchasing system, wherein the steel mills agree on a common negotiating stance with respect to price and quantity. More specifically, a lead negotiator is appointed to coordinate all aspects of procurement in a given nation. This arrangement extends to such issues as deciding which new projects to aid and abet through the granting of long-term contracts and other forms of assistance. In summary, both existing and potential producers in Canada and Australia face a single buyer; they cannot by-pass the system. Some critics claim that the process has been carried to rather extreme lengths: the Japanese steel mills are accused of deliberately over-contracting, thus encouraging the development of unnecessary capacity. This charge, among others, will be explored in subsequent chapters.

Australians have long complained that they receive an inadequate price for coking coal exports. However, it was not until 1973, immediately after the election of the Whitlam government, that concrete initiatives were undertaken to redress the situation. Indeed, a major part of this study is devoted to a description and assessment of these policy initiatives. In Canada, much less attention has been directed towards an assessment of the ramifications of coordinated procurement policies on the net benefits received from nonrenewable resource extraction. However, issues of oligopsony have now started to surface, with much of the de-

bate being stimulated by the problems encountered by the new coking coal developments in northeastern British Columbia. Consequently, most of the Canadian-based debate has occurred in this province, although recent initiatives suggest that it is now acquiring a national audience.

Before proceeding any further, it should be explained why the analysis focuses on Australia and Canada, to the exclusion of other suppliers, notably the USA. First, the USA is not a likely candidate for exploitation. Its producers have access to a large, albeit declining, domestic market and are well placed to export to non-Japanese markets. Second, the USA is a supplier of speciality coals not readily available elsewhere, whereas Canada and Australia supply Japan with a common variety of hard coking coal. Third, USA coal is, from the JSMs' perspective, high cost - primarily due to transportation factors; thus there is very little locational rent available for appropriation by the steel mills regardless of the procurement system employed. Fourth, and perhaps the most compelling reason of all, the Japanese coking coal procurement system was explicitly designed to solicit supplies from non-U.S. sources; that is, its *raison d'être* was to allow the JSM to reduce their dependence on U.S. producers. Hence, a study of the Japanese coking coal procurement system should focus on its target suppliers - Canada and Australia.

Structure

Chapter 2 presents a broad overview of the coking coal industry; particular emphasis is placed on the demand side of the market and the role of technological change in shaping future demand. Chapters 3 and 4 focus on the development and operation of the procurement system utilized by the Japanese steel mills. This is followed by a brief analysis of the supply side of the coking coal market, with emphasis on the Canadian and Australian setting. The chapter concludes with a brief review of cartelization theory and other anti-oligopsony policy options.

Chapters 6 and 7 review the Australian experience in attempting to counteract perceived imperfections in the market place for coking coal. This is followed by a discussion of the Canadian debate and the options open to its producers and governments.

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The study concludes with a review of the major findings and some concluding observations with respect to future policy initiatives designed to ameliorate the impact of oligopsonistic behaviour.

2. Overview of the Coking Coal Industry

Introduction

This chapter outlines changes in the demand for coking coal in the Japanese market. The resulting impact on prospective suppliers, particularly those based in Australia and Canada, is also discussed. After a brief discussion of the historical development of the steel industry since World War II, the chapter focuses on price and quantity trends in the coking coal industry. This is followed by a review of future demand estimates, and an analysis of the influence of quality characteristics on individual suppliers. The analysis then shifts to a study of the potential for technological change in the steel making process, with particular emphasis on the substitution of non-coking for coking coals. The following section explores, albeit briefly, the underlying cost structures of the major participants in the Japanese market. The chapter concludes with a review of the major findings.

Coking coal is coal which is suitable for use in the blast furnaces of the integrated steel industry. It is employed to produce coke which, in turn, is used to support the blast furnace charge and to generate the heat and gases necessary to produce pig iron. The demand for coking coal is therefore derived from the demand for steel products. Between 1946 and 1979, worldwide steel production rose from 112 to 747 million tonnes. The industry then entered a period of relative stagnation from which it still shows little sign of recovery. This situation was undoubtedly caused, in part, by the macroeconomic effects of the oil shocks of the 1970s; however, other factors of a long-term nature were also at work.¹ For instance, as the economics of the industrialized nations approached advanced stages of maturity, the need for infrastructure investment, which is highly steel-intensive, declined in a slow but inexorable manner. Furthermore, the oil shocks led to the development of smaller scale products in order to increase energy

¹ For a discussion of these structural issues see Roger J. Goodman, "Industrial Restructuring and Changing World Metallurgical Coal Trade Patterns", *CIM Bulletin*, vol. 78, no. 873, January 1985, pp. 56-61.

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efficiency - the so-called downsizing effect. Finally, the search for lightweight products also lead to the increasing use of substitutes such as plastics and aluminium.

Of particular relevance to this study is the phenomenal growth of the Japanese steel industry since the end of WW II.² In 1946, Japan produced a mere 0.6 million tonnes of crude steel; in 1973, its output reached 119.3 million tonnes,³ a figure exceeded only by the USA and the USSR. Although Japan has never again matched its 1973 output, it has nevertheless improved its relative ranking and is now the world's second largest producer, trailing only the USSR. This is a remarkable feat for a nation which must import virtually all of its primary steel inputs, including approximately 90 percent of its coking coal requirements. Not surprisingly, as shown in table 1, Japan has become the world's largest importer of coking coal; in recent years it has accounted for approximately 45 percent of total trade.

From 1947 until 1972, the USA was the leading supplier of coking coal to the Japanese steel mills.⁴ Since then, as reported in table 2, Australia has assumed first place, supplying between 40 and 45 percent of the JSM's requirements. On the other hand, the proportion captured by U.S. suppliers has declined from around 50 percent to about 18 percent. Equally relevant to this study is the fact that Canada has also become an important supplier to Japan. Its market share over the period 1973 to 1983 period was in the order of 15-20 percent; since 1984, it has increased to approximately 25 percent. Furthermore, Canadian coking coal exports to Japan now exceed the total for the USA.

2 A thorough analysis of this phenomenon can be found in Joseph R. D'Cruz, "Quasi Integration in Raw Material Markets: The Overseas Procurement of Coking Coal by the Japanese Steel Industry", unpublished D.B.A. thesis, Harvard University, 1979.

3 Ibid.

4 Ibid.

Overview of the Coking Coal Industry

Table 1

COKING COAL IMPORTS: 1963-84
(million metric tons)

	1963	1973	1979	1980	1981	1982	1983	1984
Canada	4.5	7.0	6.9	5.7	5.3	4.4	6.3	7.0
ECC	38.1	32.7	30.8	32.9	31.0	29.6	23.9	32.5
Other Western Europe	3.8	9.2	11.8	11.9	11.8	12.7	11.9	12.0
Japan	9.3	55.9	56.1	61.8	65.3	64.1	59.7	69.3
Latin America	2.3	3.3	6.3	6.3	5.4	6.1	7.3	9.3
Asia, excl. Japan	0.6	0.6	5.9	6.0	8.8	10.4	10.3	10.9
Africa/Mid. East ^a	0.6	0.6	1.3	1.9	1.9	2.1	1.8	n.a.
CPE ^b : Europe	10.7	7.8	9.0	9.6	9.2	9.3	10.9	11.3
CPE: Asia ^a	0.0	0.0	1.5	1.4	1.4	1.3	1.2	n.a.
Total	69.9	117.1	129.6	137.5	140.1	140.0	133.3	155.8

Source: Derived from Vincent Calarco, World Coal Outlook: A Reassessment, Chase Manhattan Bank, April 1985, p. 52 ; and Vincent Calarco, The Coal Situation, Chase Manhattan Bank, vol. 5, no. 2, March 1985.

^a Total "other" imports total 3.5 million tonnes.

^b Centrally Planned Economies.

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Table 2

MARKET SHARES BY MAJOR COKING COAL SUPPLIERS TO THE JAPANESE STEEL MILLS: SELECTED YEAR 1970-84^{a,b}
(percent)

	1970	1972	1974	1976	1978	1979	1980	1981	1982	1983	1984	1985
United States	53	32	42	30	20	25	33	37	33	26	22	18
Australia	31	42	35	43	46	47	40	41	43	45	43	44
Canada	9	18	15	17	22	17	17	14	15	19	25	25
USSR	5	5	5	5	4	3	3	1	2	2	2	3
Poland	2	2	2	2	1	1	1	-	-	-	-	-
South Africa	-	-	-	2	5	5	5	5	5	6	7	6
China	-	-	-	-	1	1	1	2	2	2	2	3
Other	-	-	-	1	1	1	-	-	-	-	-	1

Source: Derived from Coal Manual (Tokyo: Tex Report, 1986), p. 30.

^a Totals may not add due to rounding.

^b The estimates for 1984 are based on six months activity, January-June 1985 (Coal Manual 1986, p. 73).

Production, Exports and Prices

Although coal is found throughout the world, approximately 80 percent of the geological resources and 55 percent of economically recoverable reserves are to be found in three nations: China, USA and USSR.⁵ Although the reserves of Australia and Canada are relatively small, they rank 4th and 5th in the former category and 8th and 10th in the latter classification, respectively.⁶ However, because of their small populations, Canada and Australia have surplus reserves and are important coal exporters.

Coal is also produced in many other nations, although much of it is used domestically for thermal purposes. The dominant producers are China, USA and the USSR; they are followed at a considerable distance by Poland, South Africa, India and Australia. All of those nations produced in excess of 100 million tonnes in 1985. Canada ranked 9th in that year, producing 61 million tonnes.⁷

The relative rankings associated with the export trade are quite different. Based on 1984 data, Canada is in 5th position behind Australia, USA, Poland, and South Africa.⁸ It should also be noted that the world export trade generally accounts for approximately 10 percent of global production.

The focal point of this study is the coking coal trade. From table 3, it is apparent that this subset of the total market is highly concentrated, with the two leading exporters, the USA and Australia, accounting for 65 percent of total activity in 1984. Canada is the third largest exporter of coking coal and in 1984 supplied 15 percent of coking coal exports.

⁵ The non-technical reader is warned that widely varying reserve and resource figures abound. Even within Canada, provincial government estimates will differ from those of Energy, Mines and Resources. The differences relate to different definitions underlying the analysis.

⁶ See appendix I, table 16 for details.

⁷ See appendix I, table 17 for supporting data.

⁸ See appendix I, table 18 for details.

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Table 3

COKING COAL EXPORTS: 1963-1984
(million metric tons)

	1963	1973	1979	1980	1981	1982	1983	1984
United States	35.9	39.0	45.5	57.3	59.2	56.7	45.5	51.7
Australia	3.1	28.1	34.7	33.9	40.8	37.0	42.1	47.0
South Africa	0.0	0.1	2.3	3.4	3.3	3.4	3.0	5.0
Canada	0.8	10.7	12.7	14.1	13.6	13.0	14.5	22.1
West Germany	13.9	10.5	8.6	6.9	7.8	6.5	6.7	6.8
United Kingdom	0.3	0.0	0.1	0.1	0.6	0.2	0.2	0.0
Poland	3.5	10.0	9.4	6.2	3.7	7.0	9.7	10.5
USSR	12.4	13.8	11.2	11.7	9.8	9.6	7.7	7.2
China (P.R.)	2.4	2.5	2.5	2.6	3.3	3.4	3.3	2.9
Others	0.0	3.0	0.8	2.5	2.8	2.8	2.6	2.6
Total	72.3	117.7	127.8	138.7	144.9	139.6	135.3	155.8

Source: Derived from Vincent Calarco Jr., World Coal Outlook: A Reassessment, Chase Manhattan, April 1985, p. 52; and Vincent Calarco, The Coal Situation, Chase Manhattan Bank, vol. 5, no. 2, March 1985.

Although the USA is an important exporter, its sales have declined moderately since 1981. This is attributable to high production costs, exacerbated by the recent appreciation of the U.S. dollar vis-a-vis its competitors, and long hauls to the Asian market. On the other hand, U.S. producers have guaranteed access to a large, albeit declining, domestic market, and their remaining sales are broadly dispersed throughout the non-socialist world. The latter point requires emphasis. In 1983, the USA exported 57 percent of its coking coal production; comparable figures for Australia and Canada are 85 and 93 percent, respectively.⁹ The corresponding 1985 estimates of the ratio of sales to Japan to to-

⁹ Estimates derived from International Energy Agency, Coal Information 1985 (Paris: OECD, 1985). It should be noted that 100 percent of western Canadian coking coal production is exported; it is only Nova Scotia output which is consumed domestically, primarily in the Cape Breton steel works.

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tal exports are 23, 58 and 75 percent.¹⁰ Indeed, as shown in greater detail in tables 4 and 5, a high dependency on the Japanese market is a distinguishing feature of the Australian and Canadian coking coal industry.

As shown in tables 6 and 7, coking coal prices rose rapidly after the 1973 energy crisis and, in real terms, remained relatively firm until the late 1970s.¹¹ Since then they have continuously declined. Nevertheless, present day prices, once again measured in real terms, are still substantially above their pre-1974 levels. Although the data presented are expressed in U.S. dollars and incorporate ocean transport costs to Japan, they are nonetheless representative of Australian f.o.b.t. domestic currency price trends.

¹⁰ Derived from Suzan Lindsay Randle and Gerald McCloskey, eds., Coal Year 1985 (London: Financial Times, 1986).

¹¹ Although the data presented is satisfactory for purposes of detecting long-term trends, the reader is warned that the data are highly aggregative, and thus prone to errors of composition. That is, average price indices could show a decline attributable entirely to a shift towards the sale of lower quality and, hence lower priced coal. This result is obviously consistent with constant or even rising prices for each type of coal. Notwithstanding this qualification, the trends exhibited are considered to be a reasonable reflection of overall market performance.

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Table 4

AUSTRALIA: COKING COAL EXPORTS 1971-84^a

(million metric tons)	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Japan	16.5	20.3	25.2	23.0	23.0	25.1	26.6	23.6	25.6	25.6	28.6	25.7	28.1	29.4
South Korea	-	-	0.4	0.6	0.6	1.0	1.1	1.2	2.1	2.3	3.5	3.8	3.4	3.3
Taiwan	-	-	0.1	0.4	1.0	0.1	0.5	0.9	1.0	0.7	0.8	1.5	2.1	1.8
Europe	3.2	3.2	2.8	4.7	6.1	5.6	7.8	6.0	4.9	4.3	5.7	4.0	6.3	9.4
Other	0.5	0.1	-	0.4	0.5	0.2	0.4	0.3	1.0	0.6	1.2	2.1	2.2	3.1
Total	20.1	23.5	28.5	29.2	30.4	31.9	36.3	32.0	34.7	33.5	39.9	37.1	42.1	47.0

Source: Joint Coal Board, Black Coal in Australia (Sydney: Joint Coal Board, various years); and Australia, Department of Trade and Resources, Inquiry into the Australian Export Coal Industry, Submission to the Senate Standing Committee on Trade and Commerce, Canberra, September 1982, p. 40.

^a Statistics prior to 1978 include steaming coal exports. The total quantity of thermal coal exported over the interval 1970 to 1977 (in million metric tons) was as follows: 1.4; 2.7; 0.9; 0.1; 2.7; 3.4; 2.9; 3.7. (See Black Coal in Australia 1982-83, p. 81).

CANADA: COKING COAL EXPORTS 1969-85^a

(million metric tons)

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Japan	1.1	3.8	6.7	7.6	10.7	10.0	10.8	10.6	10.6	10.9	10.6	10.8	9.4	9.4	10.2	15.4	17.0
South Korea	-	-	-	-	-	0.0	-	0.4	0.3	0.6	0.9	1.3	1.9	1.9	1.9	2.3	2.2
Taiwan	-	-	-	-	-	-	-	-	-	0.0	0.1	0.2	0.3	0.3	0.5	0.6	0.5
Latin America	-	-	-	0.1	0.1	0.0	-	0.1	0.2	0.6	0.5	0.8	1.5	1.5	1.1	1.2	1.2
Europe	-	0.1	0.2	0.1	0.0	0.4	0.8	0.7	1.2	1.5	1.2	0.7	0.6	0.6	0.7	1.2	1.2
Other	0.2	0.1	0.1	0.0	0.2	0.4	0.1	0.0	-	0.1	0.4	0.3	0.3	0.3	0.1	0.4	0.4
Total	1.3	4.0	7.0	7.7	10.9	10.8	11.7	11.8	12.3	13.6	13.7	14.1	13.9	13.0	14.6	21.1	22.5

Source: The data for 1969-84 were derived from Statistics Canada, Coal Mines, Cat. No. 26-206, various years. The 1985 estimates were derived from Giacomo Capobianco and D.O. Downing, "The Competitive Position of Canadian Export Coal", unpublished paper delivered to the 88th Annual Meeting of the Canadian Institute of Mining and Metallurgy, Montreal, May 1986.

^a Statistics prior to 1980 include steaming coal exports. Although the exact figures are unavailable, discussions with industry officials suggest that it is unlikely that thermal coal exports accounted for more than 5 percent of total coal exports prior to 1980.

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Table 6

AVERAGE PRICES PAID BY JAPANESE STEEL MILLS FOR
COKING COAL IMPORTS, 1969-84
(CIF, current U.S. dollars per metric ton)

Fiscal	South							
Year	Canada	USA	Australia	USSR	Poland	Africa	China	Average
1969	15.72	19.51	13.60	14.48	15.88	-	-	16.69
1970	16.60	26.26	15.42	15.75	16.92	-	-	21.32
1971	20.04	27.47	16.07	18.37	22.09	-	11.76	21.36
1972	21.07	28.88	17.46	19.52	24.42	17.28	-	21.97
1973	22.88	33.42	21.48	21.29	25.94	19.31	-	25.64
1974	35.20	74.45	32.87	39.49	44.83	40.47	-	50.99
1975	54.03	70.22	44.02	53.87	60.41	44.89	-	56.16
1976	60.58	70.41	51.91	55.52	61.61	42.06	-	59.09
1977	58.80	72.37	54.06	54.94	61.19	42.73	-	59.06
1978	57.38	73.10	57.11	55.17	59.84	44.31	49.66	59.87
1979	58.69	76.51	56.53	53.92	58.69	48.00	51.25	61.51
1980	62.39	81.41	60.74	59.12	61.27	53.51	56.94	67.24
1981	65.83	83.85	67.03	67.48	63.76	66.66	67.68	72.93
1982	73.41	84.71	68.71	70.91	-	67.93	67.33	74.50
1983	69.07	76.24	60.84	56.12	-	54.61	53.28	65.40
1984	69.38	70.57	58.26	52.00	-	49.99	51.53	62.56

Source: Coal Manual 1985 (Tokyo: Tex Report, 1986), p. 31.

- = not available

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Table 7

AVERAGE PRICES PAID BY JAPANESE STEEL MILLS FOR COKING COAL IMPORTS, 1969-84

(CIF, constant 1984 U.S. dollars per metric ton) ^a

Fiscal Year	Canada	USA	Australia	USSR	Poland	South Africa	China	Weighted Average
1969	44.15	54.80	38.20	40.67	44.60	-	-	46.77
1970	43.96	69.53	40.83	41.71	44.81	-	-	56.44
1971	50.84	69.69	40.77	46.61	56.04	-	29.83	54.11
1972	51.65	70.80	42.80	47.85	59.87	42.36	-	53.85
1973	52.79	77.10	49.56	49.12	59.85	44.55	-	59.13
1974	73.25	154.93	68.41	82.18	93.29	84.21	-	105.99
1975	102.82	133.64	83.77	102.52	114.97	85.33	-	106.85
1976	109.02	126.70	93.41	99.91	110.87	75.69	-	106.33
1977	99.70	122.71	91.67	93.15	103.75	72.45	-	100.15
1978	90.24	114.96	89.81	86.77	94.11	69.68	78.10	94.10
1979	83.14	108.36	80.08	76.37	83.13	67.99	72.59	87.14
1980	77.47	101.10	75.43	73.42	76.08	66.45	70.77	83.44
1981	74.18	94.50	75.54	76.04	71.86	75.12	76.27	82.20
1982	78.19	90.22	73.18	75.53	-	72.36	77.72	79.36
1983	71.43	78.84	62.92	58.04	-	56.47	55.10	67.63
1984	69.38	70.57	58.26	52.00	-	49.99	51.53	62.56

Source: Derived from Table 6.

^a Converted to constant dollars using the U.S. CPI. See OECD, Main Economic Indicators: Historical Statistics 1964-1983 (Paris: OECD, 1984) and OECD Main Economic Indicators (Paris: OECD, 1986).

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Demand Forecasts

Despite the fact that estimates of future coking coal utilization abound, I have chosen to focus primarily on the work of Calarco. This decision is based on two important factors: his estimates appear to be generally consistent with those of many other forecasts;¹² and he has published estimates based on a consistent set of underlying assumptions for every stage of the steelmaking process.

Let us start at the end of the process, the production of crude steel, and work back to the derived demand for metallurgical coal. It can be seen from table 8 that Calarco expects raw steel production to increase only modestly over the 1985-2000 period; although regional variations exist, the global estimate is only 0.7 percent per annum. Note that Japanese production is expected to decline, as is output in Europe and the USA. On the other hand, substantial growth is predicted for the newly industrialized countries, namely Korea, Taiwan, China and several Latin American nations.

After adjusting for expected changes in the coke rate and the ratio of mini-mills to blast furnaces, Calarco forecasts that the global demand for coking coal imports can also be expected to grow by 0.7 percent per year over the next 15 years. Furthermore, his country and region-specific estimates closely parallel those for raw steel production. In particular, note that Japanese requirements are expected to decline marginally over the interval, while

¹² Although some differences exist, especially with respect to country-specific export estimates, most available studies suggest a rather depressing picture of future coking coal demand over, say, the next twenty years. The interested reader is referred to: International Iron and Steel Institute (October 1984); Energy Information Administration, *Outlook for U.S. Coal Imports* (Washington: Department of Energy, 1986); Roger Goodman, "Western Canadian Export Metallurgical Coal Industry - Trends and Prospects", *IM Reporter*, vol. 10, no. 4, 18/9/84; International Energy Agency, *Coal Information 1985* (Paris: OECD, 1985); National Coal Association, *Coal 2000* (Washington: National Coal Association, 1986); and Australian Coal Consultative Council, "A Forward Study of the New South Wales and Queensland Coal Industry to 1990", Report by Working Party No. 6, Canberra, February 1986.

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Table 8

WORLD RAW STEEL PRODUCTION: 1983-2000
(million metric tons)

	1983	Forecast				growth rate /yr % ^a
		1985	1990	1995	2000	
United States	76.8	81.9	79.9	77.8	76.0	-0.5
Canada	12.7	14.5	14.2	13.4	12.4	-1.0
Western Europe	143.6	151.0	146.2	141.6	135.2	-0.7
Japan	97.2	104.4	104.4	101.8	99.3	-0.3
Other Asia	29.8	33.6	42.7	50.9	59.0	3.8
Australia/ New Zealand	5.8	6.8	7.4	7.5	7.5	0.3
Latin America Africa/ Middle East	28.9	33.6	43.2	52.0	61.6	4.1
CPE ^b : Europe	211.2	213.5	213.1	207.8	199.0	-0.5
CPE ^b : Asia	45.7	48.9	62.4	78.9	97.6	4.7
World Total	663.9	703.1	734.0	755.8	775.7	0.7

Source: Derived from Vincent Calarco Jr., World Coal Outlook: A Reassessment, Chase Manhattan, April 1985, p. 94.

^a annual compound growth rate over the period 1985-2000.

^b Centrally planned economies.

those in Korea, Taiwan and Latin America are anticipated to exhibit rapid growth.¹³

Country specific forecasts of seaborne exports should be treated with caution; indeed, it is in this area that the available data shows the most variation.¹⁴ In particular, the future

¹³ See Roger J. Goodman, "The Western Canadian Export Metallurgical Coal Industry - Trends and Prospects".

¹⁴ This is not unexpected, since it is much easier to estimate global requirements and even country-specific utilization, then it is to estimate country-specific export shares. This is, in part, due to unanticipated variations in exchange

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performance of U.S. and Australian exporters appears to generate widely differing estimates. Despite this note of caution, I shall continue to restrict the discussion to Calarco's forecast as reported in table 9. Note that he expects seaborne trade to increase at an average rate of 1 percent per annum. Furthermore, he anticipates virtually no change in market shares among the major exporters. Indeed, Columbia is foreseen as the only new entrant, and its output is more than offset by a decline in offshore sales by the existing fringe producers.

Table 9

WORLD SEABORNE COKING COAL EXPORTS: 1983-2000
(million metric tons)

	1983	Forecast				1985-2000 Compound Growth Rates
		1985	1990	1995	2000	%/Year
United States	39.0	40.8	43.6	46.7	46.3	0.8
Canada	14.5	22.0	24.8	25.0	25.9	1.1
Columbia	0.0	0.3	0.5	0.7	1.0	8.4
South Africa	3.0	4.6	4.9	4.8	4.6	0.0
Australia	42.1	45.4	49.9	52.8	52.4	1.0
Poland/USSR	7.6	11.4	12.3	10.9	12.3	0.5
PRC	1.9	2.4	3.6	4.2	5.0	5.0
Others	3.9	2.3	2.0	1.8	1.6	-2.4
Total	112.0	129.2	141.5	146.9	149.1	1.0

Source: Derived from Vincent Calarco Jr., World Coal Outlook: A Reassessment, Chase Manhattan, April 1985, p. 115.

In summary, the estimates presented above are based on one source only: the work of Calarco. However, as noted above, with the exception of country-specific export projections, his estimates are quite similar to these generated by a number of other

rates, tax and subsidy policies, political stability, transportation policies, and technological change which alters preferences of users between various types of coal.

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respected forecasters. Nevertheless, it must be admitted that safety of numbers does not guarantee accuracy. Indeed, a worldwide economic recovery would render these consensus estimates too low; alternatively, implementation of new technologies could result in a radical reduction in future coking coal demand. It is towards an examination of the latter possibility that I now turn my attention; first, however, I must digress and briefly discuss selected coal quality issues.

Coal Quality

The most commonly employed classification system ranks coal in descending order of desirability from anthracite to lignite. As shown in table 10, this scheme focuses on two characteristics: fixed carbon content and heat value. However, for purposes of steelmaking the coal must also possess special characteristics, called coking properties, that will allow the coal to be converted into a coke suitable for use in modern large blast furnaces. Only bituminous coal possesses sufficient carbon content and the other properties necessary to form coke. Among the latter properties are: volatile matter, moisture, sulphur, ash, which is the inert material contained in the coal, and the coking properties.¹⁵

The price of coking coal is said to be negatively related to the presence of moisture, sulphur and ash. Alternatively, it is positively related to a coal's fixed carbon content (this follows from the fact that the higher the proportion of fixed carbon in a unit of coal, the lower the quantity of coal required to produce a unit of

¹⁵ For information on coal properties, especially in relation to the needs of the Japanese steel industry, see David E. Pearson, "The Quality of Western Canadian Coking Coal", *CIM Bulletin*, January 1980, pp. 70-84; David E. Pearson, "The Quality of Canadian Coal - a Petrographic Approach to its Characterization and Classification", in T.H. Patching, ed., *Coal in Canada* (Montreal: Canadian Institute of Mining and Metallurgy, 1985), pp. 21-30; Peter Kittredge and Lorne Sivertson, "Competition and Canadian Coal Prices in the Japanese Coking Coal Market", *CIM Bulletin*, September 1980, pp. 100-109; and Peter Kittredge, "The Current Market Value of British Columbia's Coals", unpublished report prepared for the British Columbia Ministry of Industry and Small Business Development, Victoria, June 1982.

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Table 10

CLASSIFICATION OF COAL BY RANK

VM%*	FC%*	Class	Group	Calorific Value **	
				Btu per lb	Mj kg
2	98	Anthracitic (1)	Meta - Anthracite		
8	92		Anthracite		
14	86		Semianthracite		
22	78		Low Volatile Bituminous		
31	69	Bituminous (2)	Medium Volatile Bituminous		
			High Volatile A Bituminous	14 000	32.6
			High Volatile B Bituminous	13 000	30.2
			High Volatile C Bituminous	11 500	26.7
		Subbituminous (4)	Subbituminous A (3)	10 500	24.4
			Subbituminous B	9 500	22.1
			Subbituminous C	8 300	19.3
		Lignitic (4)	Lignite A	6 300	14.7
			Lignite B		

Source: A.S. Romaniuk and H.G. Naidu, Coal Mining in Canada: 1983, Canmet Report 83-20E (Ottawa: Supply and Services Canada, 1983), p. 6.

* Dry, mineral-matter-free basis

** Moist, mineral-matter-free basis

(1) Non-agglomerating; if agglomerating classified as low volatile bituminous

(2) Commonly agglomerating

(3) If agglomerating classified as high volatile C bituminous

(4) Non-agglomerating

VM: Volatile matter

FC: Fixed carbon

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coke); and to the crucible swell number (CSN), and to the fluidity, which are indicators of the coal's coking ability.¹⁶

At this point, it should be noted that the steel industry normally classifies coal broadly on the basis of its volatile matter rather than its fixed carbon content. Although this may be confusing to those outside the industry, the terms can, with limited qualifications, be used interchangeably to reflect the carbon content of a coal; throughout this study, I shall follow this connection. Hence, a low volatile coal, denoted lvb (low volatile bituminous), is a "good" coal because it contains a high percentage of fixed carbon. Furthermore, mvb and hvb represent medium and high volatile bituminous coals, respectively.

A coal possessing good coking properties also yields a premium price, everything else being equal. The term coking properties actually covers a number of desirable attributes. Among the more important are the two mentioned above, namely the coal's fluidity and swelling characteristics. The former is an important element in producing a strong coke, since it facilitates the bonding of carbon particles. It should be noted that steel producers require a strong coke in order to support the blast furnace charge. The swelling characteristic refers to the steelmakers desire to produce a coke which maintains its bulk density when heated at high temperatures. This follows from the fact that excessive expansion may damage the blast furnace walls; alternatively, excessive shrinkage results in reduction of the quality and quantity of output. It should be noted, for future reference, that important indices of fluidity and swelling are the DDM and the CSN or FSI (free swell index) tests, respectively.¹⁷

In summary, it is apparent that an ideal coking coal is one that possesses: a low level of volatiles (lvb), good coking properties (hck), and limited quantities of moisture, sulphur and ash. The earth's crust is not heavily endowed with such coals, and where they do exist, primarily in the USA, they attract a premium

¹⁶ For details on the price/quality relationship see Peter Kittredge and Lorne Sivertson, "Competition and Canadian Coal Prices in the Japanese Coking Coal Market".

¹⁷ See David E. Pearson, "The Quality of Western Canadian Coking Coal", pp. 75-78.

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price. In order to minimize production costs, steelmakers resort to blending techniques where coals of various qualities are combined to yield an acceptable coke. The Japanese are particularly skilled at this procedure. Although most steelmills blend 4 to 8 coals, the Japanese reportedly combine 14 to 18 different products on a regular basis.

Indeed, it is by way of blending techniques that the JSM have reduced their dependence on high cost, low volatile/high quality coking coals from the USA. It has done so by combining lvb/lck coals from western Canada, Australia and the USSR with hvb/hck coals, frequently denoted as soft-coking/high fluidity coals, from the USA, NSW, South Africa, China, and domestic sources. Although the primary purpose of blending is to reduce utilization of otherwise high cost coal, it also allows Japan to reduce its dependency on any single supplier to acceptable levels. Not only does this contribute towards its security-of-supply objective, but it may also reduce prices by increasing competition and, perhaps, precluding collusive selling practices. These arguments will be developed in detail in the following two chapters. Now however, let us turn our attention to another important issue: technological change.

Technology

In this section, I shall first briefly describe recent changes in steel-making technology and then shift to a cursory examination of those aspects of future technological change which could materially affect the utilization of coking coal. As previously noted, the primary method of making steel is the blast furnace or basic oxygen furnace (BOF) process. It utilizes coke to support the charge and to provide the heat and gases necessary for pig iron production. Its major competitor is the electric arc furnace (EAF) which utilizes either scrap metal or pelletized iron ore as its basic feedstock and natural gas as its primary energy source.

For purposes of this study, the distinguishing feature of the EAF process is that it does not utilize coke or coking coal. In this regard, it is important to note that the proportion of steel production derived from the EAF process has increased significantly in recent years; it climbed from 17 to 23 percent between 1975 and

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1982.¹⁸ In Japan, the corresponding figures are 16 and 27 per cent.¹⁹ The EAF process possesses a number of attractive attributes: low capital costs per tonne of capacity; the availability of small scale, yet efficient designs; and the ability for many countries to utilize domestic energy sources, primarily natural gas.²⁰ These observations are supported by Goodman:

Lower capital costs and greater flexibility in scale-up options will continue to favour the development of scrap-based and direct reduction-based electric steelmaking in many developing countries. Current costs for emplacement of electric furnace - direct reduction plants are about \$450-\$650 an annual tonne of crude steel production. Scrap-based, electric arc furnace plants are lower, with annual tonne crude steel costs of U.S. \$200-300. This contrasts dramatically with costs of integrated blast furnace-basic oxygen steelmaking complexes, where values are US \$1200-\$1500 an annual tonne of crude steel production. In addition, a minimum scale of about 3 million tonnes of annual steel plant capacity is normally required for project optimization.²¹

Hence, it is not surprising that most of the replacement and incremental steel capacity to be constructed over, say, the next twenty years, is expected to employ the EAF process.²² Therefore, even if

¹⁸ International Iron and Steel Institute, Steel Statistical Yearbook 1984, p. 6.

¹⁹ Derived from Roger J. Goodman, "The Western Canadian Export Metallurgical Coal Industry - Trends and Prospects".

²⁰ See Roger J. Goodman, "The Western Canadian Export Metallurgical Coal Industry - Trends and Prospects"; and P.K. Pitler, "Steel Industry Process Technology Trends", Materials and Society, vol. 9, no. 2, 1985, pp. 147-159.

²¹ Roger J. Goodman, "Industrial Restructuring and Changing World Metallurgical Coal Trade Pattern", pp. 60-61.

²² See Vincent Galarco Jr., World Coal Outlook: A Reassessment, Chase Manhattan Bank, April 1985; and Roger J. Goodman, "Industrial Restructuring and Changing World Metallurgical Coal Trade Pattern". In fact, Goodman cites a recent study which suggests that 69 percent of all incremental capacity in the steel industry between 1983 and 1993 will be in the form of electric arc fur-

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future steel demand were to substantially exceed current expectations, the long-term picture for coking coal will remain bleak.

On a more positive note, the BOF process is still anticipated to be the primary production process for at least the next two decades. It remains the most efficient method for producing large quantities of steel. Furthermore, significant excess capacity prevails throughout the industry and much of the current capital stock, at least in Asia, is of relatively recent vintage. This suggests that, given current demand forecasts, major new investments in steelmaking plants and equipment cannot be justified on the basis of traditional efficiency criteria, for at least the next decade. The situation obviously changes thereafter as current facilities deteriorate.

Unfortunately for coking coal producers, a number of technical innovations are being developed which suggest that, even if the BOF process remains the dominant mode of steelmaking, coking coal requirements may still decline over time. However, before exploring future developments, let us briefly examine other past innovations as they have affected the demand for coking coal.²³ The major finding is that the coking coal market has been under attack for decades, although the effects have been masked by an absolute increase in steel production. For instance, all important steelmaking nations were able to reduce their coke requirements substantially per unit of crude steel, over the period 1963 to 1979. However, as a result of the 1979 oil shock, most steelmakers ceased using fuel oil as a supplemental heat source, and switched to all-coal furnaces. The result was a once-and-for-all increase in the use of coking coal. An additional factor, although of lesser importance, has been the success of steel producers in reducing the amount of waste material produced in the process of transforming crude steel into finished products. This point has been made rather vigorously by Goodman:

naces. It would seem reasonable based on the material presented in the text, to assume that the corresponding estimates for the following decade will be even larger.

²³ For details see *ibid.*, and Roger J. Goodman, "Industrial Restructuring and Changing World Metallurgical Coal Trade Pattern".

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Almost unnoticed over the past decade has been dramatic improvement in the yields of rolled steel per unit of crude steel. For example, in Japan the yield of rolled steel from a given unit of crude steel has improved by over 8 percentage points from 82.7 percent in 1972 to an estimated 91 percent in 1982. This has been accomplished largely by wide scale adoption of continuous casting and improvements in steel rolling techniques.²⁴

Recent activity has focused on ways of utilizing greater quantities of non-coking coal in the BOF process.²⁵ For example, the JSM continue to increase their reliance on pulverized coal injection (PCI) techniques. This approach, which utilizes non-coking coal, helps maintain stability in the furnace. Furthermore, it should be noted that a tonne of semi-soft coking coal used in the PCI process displaces the equivalent of 1.2 tonnes of coke or 1.8 tonnes of coking coal.²⁶ This technique alone has the potential of reducing hard coking coal consumption by 10 to 15 percent.

Another innovation, which has reached the early stages of implementation, is that of briquetting; this process utilizes primarily non-coking coal to produce coke. It has been suggested that this process could result in non-coking coals providing up to 20 percent of total coal needs. Sumitomo Metal Industries Ltd. has reportedly used this process since 1975 with some success.²⁷

²⁴ Roger J. Goodman, "The Western Canadian Export Metallurgical Coal Industry - Trends and Prospects".

²⁵ The following discussion of future trends in steelmaking in Japan relies heavily upon two important papers by K. Kinoshita, Senior Managing Director, Sumitomi Metal Industries Ltd: "Steel Making and its Implications for Coal", in *Coal - A Reappraisal: Proceedings of the 1984 Australian Coal Conference* (Sydney: Australian Coal Association, 1984), pp. 50-61; and "Techniques of the Utilization of Inferior Quality Coal at Blast Furnaces and Coke Ovens and Future Trends", unpublished paper delivered at the Canada/Japan Businessmen Cooperative Committee, Nagoya, Japan, May 1986. Other useful references are R.K. Pitler, "Steel Industry Process Technology Trends"; and Roger J. Goodman, "The Western Canadian Export Metallurgical Coal Industry - Trends and Prospects".

²⁶ See K. Kinoshita, "Techniques of the Utilization of Inferior Quality Coal at Blast Furnaces and Coke Ovens and Future Trends", p. 2.

²⁷ K. Kinoshita, "Steel Making and its Implications for Coal", p. 51.

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A third innovation utilizes pre-heated coal in the charge given to the coke oven. Its advocates claim that it could result in a non-coking/coking coal utilization ratio of approximately 30:70. However, the future of this process is unclear; for instance, Kinoshita states:

We shall have to consider whether this process can be implemented when the coke oven is to be replaced since the process requires drastic reconstruction of the coke oven in comparison with the normal process.²⁸

The final development to be considered here is the use of "formed" coke. Once again, Kinoshita, the Senior Managing Director of Sumitomo Metal Industries Ltd., reports:

By this carbonizing process coke is made with 100 percent briquetted coal. In the system, use of non-coking coal amounting to over 70-80 percent of the total coal feed is expected. At this stage, the government and steel industry are jointly proceeding with the study of the process and a pilot plant that has the capacity to make 200 tonnes of coke per day will start test operations in 1984.²⁹

Although such developments have the potential to virtually destroy the coking coal industry, it must be stressed that the above discussion is based on technical, not economic, feasibility. That is, the cost savings generated by a greater reliance on lower cost non-coking coal must be weighed against the incremental expenditure required to convert the coke ovens and blast furnaces to accept the new technology. As discussed previously, the JSM are currently characterized by both excess capacity and relatively new capital stock. It is therefore unlikely that the current coking/non-coking coal price ratio is sufficiently large to trigger a major round of investment. Nevertheless, the situation will change over the longer term as physical deterioration of present facilities necessitates major refurbishing activities. At this point, the incre-

²⁸ *Ibid.*, pp. 51-52.

²⁹ *Ibid.*, p. 52.

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mental costs of incorporating the new technology into the BOF process should decline vis-a-vis the current situation. Therefore, assuming no radical change in the coking/non-coking coal price ratio, the movement towards the use of non-coking coals should be gradual but inexorable.³⁰ The major impact of such initiatives should not be felt until after 1995.

In conclusion, it is apparent that it is not the price of coking coal per se, but its relationship to other types of coal, that is the critical factor in determining the rate at which non-coking coals are substituted for the former. These same facts can, however, be reinterpreted in the following manner: there may exist some room for coking coal prices to rise, at least over the short and medium term, before the necessary impetus is given to the wholesale introduction of coking-coal-saving technologies. Nevertheless, as noted above, the critical price spread can be expected to diminish over time as normal reinvestment decisions are deliberated.

In conclusion, technological change in the steelmaking industry is an ongoing process. Over the past thirty years, coking coal markets have been steadily eroded by the increasing use of mini-mills and improvements in the BOF steelmaking process. A brief examination of the future suggests that an increasing share of world steel production will be derived from electric arc furnaces, and that PCI technology will become more widely employed within BOF operations. Although the commercial application of other technologies is somewhat problematical, especially if the coking/non-coking coal price ratio does not increase, it is entirely possible that new processes will be adopted which will seriously erode the coking coal market. Although such an outcome is highly uncertain, the pessimistic scenario serves notice to supply management advocates that cartelization policies, if pushed too

³⁰ After the chapter was written, the international oil market collapsed. This, in turn, led to downward pressure on non-coking coal prices. Hence, it is possible to argue that these events may trigger additional investment in coking-coal-saving technologies as described above. However, given the widespread view among oil analysts that oil prices will rise again over the medium term, it is unlikely that the current pricing ratio of coking to non-coking coal is viewed by the JSM as a permanent relationship. In other words, the current situation in the oil market should not affect the analysis contained in this chapter.

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aggressively, could lead to a substantial deterioration of the coking coal market over the longer term.

Supply Issues

Cost Comparisons

Coking coal is extracted from both underground (UG) and open-cut (OC) mines. The former utilize long-wall and continuous mining machines; the latter rely on truck/shovel and dragline extraction methods. In general, the underground operations are higher cost than the large-scale, open-cut projects. Furthermore, long-wall underground mines and open-cut mines are significantly more capital intensive than the traditional underground mines.

Firm-specific cost data is extremely difficult to obtain. However, several researchers have developed country-specific hypothetical mine models. Perhaps the best known is the work of Barnett.³¹ He utilizes a disaggregated costing model, set within a discounted cash-flow framework, to generate estimates of the international competitiveness of major thermal and coking coal producers.

According to Barnett, Australia is the world's lowest cost producer of hard coking coal, on a f.o.r. and f.o.b.t. basis.³² The Australian mines, especially those in Queensland, are large scale; they have thick single seams, and are located between 100 and 300 kilometres from of a major port. In contrast, Canadian mines, albeit also large scale, face difficult climatic and geological conditions. Furthermore, the western Canadian mines face a 1,100-kilometre rail haul from mine site to port. The situation in the United States is somewhat different. The export-oriented coking

31 Recent examples of Barnett's work include: D.W. Barnett, "Export Coal Costs in Australia, Canada, South Africa and the USA", *Materials and Society*, vol. 9, no. 4, 1985; "Rail Freight and the Cost of Australian and North American Exports", *Journal of Business Administration*, vol. 15, nos. 1-2, 1985; and "The Australian Export Coal Industry in the Mid-1980s - An Overview", *Materials and Society*, vol. 9, no. 4, 1985.

32 See D.W. Barnett, "Export Coal Costs in Australian, Canada, South Africa and the USA".

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coal mines are located in the Appalachian region at an average distance of 800 kilometres from port. The mines are generally small to medium-scale underground operations.

Comparative cost data on the Australian, Canadian and U.S. operations are represented in table 11. Note that operating costs are somewhat lower in Australia than in the USA and Canada. The capital charge, which reflects a per-ton levy necessary to yield a 10 percent real rate of return on investment, varies primarily according to vintage of capital. In other words, the estimates are based on historical rather than replacement cost accounting concepts. The effect is that old operations, e.g. the Utah/BHP, Westar, and Fording mines have a \$8 to \$11/t advantage over new entrants. Perhaps Australia's biggest advantage is in the area of freight rates; the older Queensland mines have a \$10/t advantage over their Canadian and American counterparts. The spread is slightly lower for new Queensland entrants, due not to locational factors but to the perversities of the Queensland government's freight-rate rent-extraction scheme. Australia's comparative cost advantage over its international competitors is really much larger than these data suggest, since it is widely acknowledged that a substantial proportion of current rail charges represent a disguised tax levy.³³

After adjusting for port loading charges, which are marginally higher in Australia than in the other nations under assessment, Barnett arrives at f.o.b. port (f.o.b.t.) estimates which reinforce the earlier claim that Australia is the lowest-cost coking coal exporter. Note, however, that there is little difference between Canada and the USA. This statement no longer holds, at least for the Japanese market, once sea-freight charges are incorporated into the analysis. It is now apparent that Canadian producers gain a \$5 to \$7/t advantage over their U.S. competitors. In conclusion, the 1983 CIF cost for coking coal in Japan substantially favours

³³ For details, see D.W. Barnett, "Rail Freight and the Cost of Australian and North American Exports"; G. Sturgees, "Queensland Puts the Squeeze on Coal Miners", *The Bulletin*, 25 November 1980; Roger Stuart, "Resource Development Policy: The Case of the Queensland Export Coal Industry", CRES Working Paper 1983/30, Australian National University, 1983; and J.H. Cassing and A.L. Hillman, "State Federal Resource Tax Rivalry: The Queensland Railway and the Federal Export Tax", *Economic Record*, vol. 58, no. 3, September 1982, pp. 235-241.

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Table 11

COST OF AUSTRALIAN, CANADIAN AND UNITED STATES COAL DELIVERED TO JAPAN
(1983 USA dollars per tonne)

Region	Mine Size '000 MT	Operating Cost, \$/T F.O.R.	Capital Cost, \$/T	Rail \$/T	Port \$/T	Cost: FOB Port	Freight to Japan	Cost: CIF Japan
<u>Australian</u>								
NSW, U/G, Old-Steam	1,000	21.0	3.0	12.0	4.1	40.1	6.5	46.6
NSW, O/C, New-Steam	3,000	18.8	8.0	7.9	4.2	38.9	6.5	45.4
QLD, Old Opencut	4,500	21.9	3.0	6.5	1.8	33.2	6.0	39.2
QLD, New Opencut	3,000	20.9	13	9.6	3.9	47.4	6.0	53.4
<u>Canada</u>								
South, BC Old O/C	5,500	29.8	3.0	15.2	2.2	50.2	5.5	55.7
South, BC New O/C	3,000	31.8	10.9	17.0	3.2	62.9	5.5	68.4
North East BC, O/C	4,000	35.8	14.3	17.7	3.1	70.9	5.5	76.4
<u>USA - Appalachia</u>								
Private O/C or U/G	200	25.0	2.0	17.0	1.0	45.0	13.0	58.0
Public Co. Longwall	1,500	32.5	9.6	17.0	1.0	60.1	10.0	70.1
<u>USA Western-Steam</u>								
Utah Underground	1,500	20.0	7.2	22.2	6.6	56.0	7.0	63.0
Colorado Opencut	3,000	13.1	3.0	28.7	6.6	51.4	7.0	58.4
Powder River Basin	15,000	7.2	1.6	27.0	3.5	39.3	7.0	46.3

Source: D.W. Barnett, "Rail Freight and the Cost of Australian and North American Export Coal", Journal of Business Administration, vol. 15, no. 1-2, 1985.

Note: U/G and O/C represent underground and open-cut mines, respectively.

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Australian producers. Canadian operators, in turn, possess a small advantage over U.S. mines.

The above estimates are presented in terms of 1983 U.S. dollars. Since that time, the U.S. dollar has appreciated substantially against both the Australian and, to a lesser extent, the Canadian dollar. As reported in table 12,³⁴ the 1985 cost structure has swung dramatically in favour of Australian producers and marginally in favour of Canadian operators vis-a-vis their American competitors. In fact, from a historical accounting perspective, the new Queensland open-cut operators possess a cost advantage over the old Canadian mines.

It should be stressed once again that Queensland and Canadian producers produce coal of similar quality;³⁵ thus the Australian price advantage reported herein is real. The situation with respect to U.S. production is somewhat different. U.S. coal is generally superior in quality to the low and medium volatile Australian and Canadian output. Nevertheless, a strict comparison of low volatile coals reveals that U.S. coals are still uncompetitive in the Japanese market. In fact, Barnett estimates that at current prices the old Queensland producers earn a profit of \$23.5/t on sales to the JSM; even the new Queensland producers earn a reasonable profit of \$6.2/t. In contrast, Canadian producers as a group can be described as marginal. The old producers generate a small profit of approximately \$5/t, but the others face difficult times. Although Bullmoose in the northeast and the new mines in southeast British Columbia are deemed to generate a small profit and negligible losses respectively, the long-term picture is much more severe. This is due to the fact that the JSM are currently paying a hefty premium for coal from these mines, which is of comparable quality to that produced by the old southeast B.C. producers. Hence, if the JSM continue to force the new producers to accept price cuts in order to bring their prices into line with world prices, then all Canadian coking-coal producers, save Balmer, Fording and Luscar, will face serious financial difficulty.

³⁴ Compare the column denoted "breakeven" in table 11 to that labelled "FOB Port" in table 12.

³⁵ David E. Pearson, "The Quality of Western Canadian Coking Coal", pp. 75-78.

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Table 12

GROSS MARGIN OF COKING COAL EXPORTERS IN 1985
(U.S. dollars per tonne, FOB producer port)

Mine Type	Price	Breakeven Cost	Gross Profit (Loss)
<u>Queensland</u>			
Old opencut	52.0	28.5	23.5
New opencut	45.0	38.8	6.2
<u>Canada</u>			
Old southern	50.5	45.7	4.8
New southern	57.0	57.1	(0.1)
Bullmoose	64.7	62.6	2.1
Quintette	67.8	79.4	(11.6)
<u>USA Appalachia</u>			
Medium Volatile	55.6	63.0	(7.4)
Low Volatile	51.0	58.0	(7.0)

Source: Donald W. Barnett, "Export Coal Costs in Australia, Canada, South Africa and the U.S.A.", Materials and Society, vol. 9, no. 4, 1985.

The data also indicate that the situation with respect to U.S. producers is equally depressing.

Other Supply Issues

In the preceeding analysis, I focused on the three leading coking coal exporters: Australia, Canada and the USA. This was done in part because they are the dominant suppliers; however, other reasons were also important, the primary one being that this study focuses on countries within which sales are made by individual producers. In all other nations, including South Africa, coking coal exports are handled through a collective selling agency.

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Furthermore, with the exception of South Africa, cost data is unavailable on the other important exporters into the Pacific Rim, namely the USSR, China, and Poland.

Future supplies of coking coal are unlikely to be constrained by resource limitations. First, as shown in figure 1, substantial excess coking coal capacity existed throughout the industry in 1983. The situation in 1986 is probably one of even greater capacity overhang due to the opening in 1984 of major projects in Australia and Canada. The reader should note, for future reference, that most of the industry's excess capacity exists in Australia, Canada and the USA. Furthermore, both Canada and Australia are capable of adding substantial capacity at relatively low cost within a 3-to-5-year horizon. The expression "relatively low cost" refers to the fact that the existing infrastructure is capable of handling significantly more tonnage. It should also be noted that operating and capital costs for new ventures should be roughly equivalent to those associated with recently constructed mines. Rephrased, Australia, on the basis of rational economic decision making, should retain its position as the world's largest exporter under virtually all plausible demand scenarios. Canada, while higher cost, also has the potential to expand exports to the Pacific Rim and Latin America, especially if buyers continue to place emphasis on supply diversification and political security.

The possibility of new entrants in the seaborne export coking coal trade is obviously a concern to existing suppliers. However, as discussed previously, most market forecasts covering the 1985-2000 period suggest otherwise. This is probably attributable to the fact that prices are expected to remain at current levels, in real terms, over the foreseeable future. Thus, unless extremely low-cost reserves are discovered, it is unlikely that new projects could be justified, especially if projects must also bear some infrastructure costs.

Let us now consider the situation facing traditional suppliers. The USA has the potential, in both the short and long term, to be a dominant supplier. Its problem in the short term is one of high operating costs and relatively long distances to the Asian market. In summary, the major role of the USA is as a swing supplier and, in terms of this study, as a cartel-constraining producer. That is, if a cartel tried to restrict shipments to the JSM

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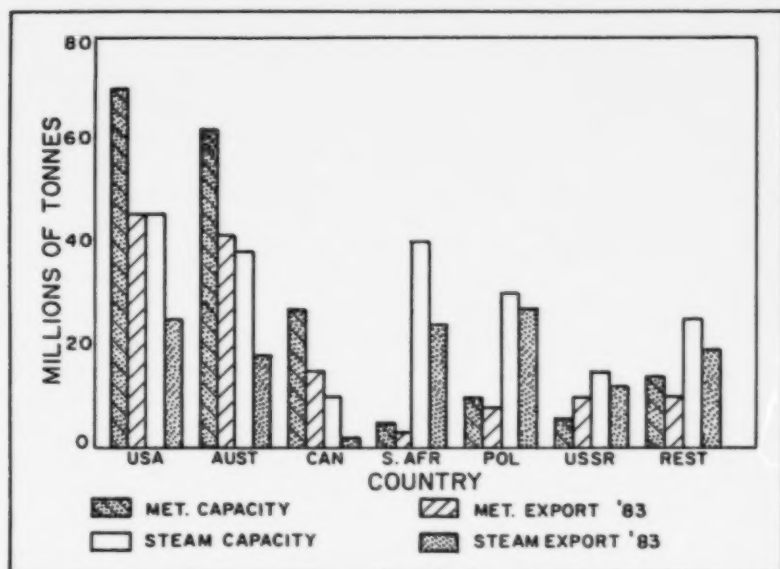


Figure 1. Excess Capacity in the World Export Coal Industry: 1983

Source: D.W. Barnett, "Australia and the World Energy Market", in D.W. Barnett and Richard L. Gordon, ed., *Prospects for Coal in the Industrialized World: Implications for Australia*, unpublished seminar notes, 12-13 November 1984, Macquarie University, p. 1.1-9.

unduly, the USA would likely provide the Japanese with the necessary supplies, although at a higher price.

The South African situation deserves a brief comment. Although it is undoubtedly the world's lowest cost thermal coal producer, and a major exporter of such coal, South Africa possesses limited quantities of coking coal. In fact, only soft coking coals are available for export with quantities limited to about 5 mtpa. According to some observers, limited growth potential exists. However, if the steel industry increasingly moves towards the use

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of non-coking coals, then South Africa will be a major threat to Canada and other high cost producers.

The USSR and China, from a resource perspective, are capable of dramatically expanding their exports of metallurgical coal. Although some expansion is currently under way in the USSR, industry officials do not envisage a dramatic increase in exports by either nation over the next decade.³⁶ Both countries require major infrastructure developments before being able to do so. Furthermore, domestic industrialization plans, especially in China, should preclude the release of vast quantities of coking coals on to the export market. Finally, for political reasons, it is unlikely that Japan and the market-oriented new industrialized countries would tie themselves too closely to either the USSR or China. Nevertheless, so little is known about the long-run objective of these countries that it would be foolhardy to ignore them as potentially serious competitors.

In summary, Canada, Australia and the USA will remain the major suppliers in the hard coking coal export market over the foreseeable future. If anything, one might expect the former two countries to improve their positions at the expense of the USA. However, given the growing debate over the U.S. balance of payments, it is possible that political pressure by the USA may lead to larger U.S. sales than would be predicted by rational economic models.³⁷ The findings also suggest that if hard coking coal producers were to initiate cartelization policies, the JSM might introduce new technologies, over the medium and longer term, which would increase the use of non-coking and soft coking coals at the expense of traditional brands. Thus, a broader knowledge of the coal market is required for the design of effective anti-monopsony policies. However, time and space restrictions preclude further discussion of this topic.

³⁶ This view is promulgated in Andrew Gordon, *Guide to World Coal Markets* (Arlington, Virginia: Pasha Publications, 1984), pp. 261-263.

³⁷ For a brief discussion of this issue, see Manfred G. Raschke, "The Structure of the International Coal Trade in Transition", in William R. Bush, ed., *Economics of Internationally Traded Minerals* (Littleton, Colorado: Society of Mining Engineers, 1986), p. 100.

Conclusion

In this chapter I have attempted to provide the reader with a cursory knowledge of the institutional factors shaping the present and future environment of the coking coal export market. It was shown that the future prospects for the industry are not optimistic. For example, both steel and coking coal demands are expected to grow by less than 1 percent per annum over the next 15 years. Furthermore, the Japanese market, the destination of approximately 65 to 75 percent of Australian and Canadian metallurgical coal exports, is expected to shrink somewhat. Recent exchange rate movements have strengthened Australia's position as the low-cost supplier to the Pacific Rim. Although Canadian suppliers are only marginally profitable - if at all - they are reasonably well situated to maintain their position in this market. Nevertheless, if coking coal markets were truly competitive, then Canada would clearly be vulnerable to predatory pricing by Australia. However, the Japanese procurement strategy clearly takes many factors, in addition to current selling price, into its decision-making calculus.³⁹

³⁹ For a discussion of the Japanese procurement strategy, see Joseph R. D'Cruz, "Quasi-Integration in Raw Material Markets: The Overseas Procurement of Coking Coal by the Japanese Steel Industry".

3. Procurement System: Overview and Description

Introduction

Japan is an unique steel producer, in that it imports virtually all of its coking coal supplies.¹ Hence, it is not surprising that the objectives of the nation's coking coal procurement policy are said to be security of supply and cost minimization.² Although these goals are of relevance to all steel producers, they are of paramount importance to the Japanese steel mills.

Given Japan's lack of domestic supplies, its substantial distance from suppliers, and its historical experience with supply interruptions,³ the JSM have placed considerable emphasis on the development of innovative security of supply policies. In the 1960s and 1970s, these concerns were reinforced by widespread industrial disputes which, at various times, affected parts of the coking coal supply chain. Furthermore, buoyant market conditions during this period enticed a number of producers of commodities other than coal to initiate supply restraint schemes. Such actions with respect to oil, bauxite, copper, iron ore, and uranium undoubtedly

¹ For a historical overview of the development of the Japanese steel industry after WW II, see Joseph R. D'Cruz, "Quasi-Integration in Raw Material Market: The Overseas Procurement of Coking Coal by the Japanese Steel Industry", unpublished Ph.D. dissertation, Harvard University, 1979.

² This view is frequently contained, implicitly or explicitly, in public speeches given by JSM officials when discussing contract issues. For example, see the Japanese papers presented to the annual meetings of the Australia-Japan Coal Conference. In addition, these objectives are discussed in H.N. Halvorson, "New Coal Production from Southeastern B.C. Compared with Proposed Northeastern B.C. Development", unpublished study for the Council of Mayors of Southeastern British Columbia, June 1980; and Christopher E. Catliff, "Japan's Government and Steel Industry Policies Towards Coking Coal Procurement: The Implications of Industrial Restructuring for the Northeast Coal Project", unpublished M.A. dissertation, University of British Columbia, December 1985.

³ For details, see Chalmers Johnson, MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975 (Stanford, California: Stanford University Press, 1982).

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influenced the development of the JSM's coking coal procurement strategy.

The second objective, cost minimization, has received less public scrutiny than that accorded security of supply issues; nevertheless, it is of crucial interest to the JSM. For instance, Japan's extreme dependency on imported coking coal and its unfavourable location with respect to such supplies means that it is imperative for the JSM to constrain raw material costs to the lowest possible level, consistent of course, with their security of supply objectives.⁴ This is necessary if the Japanese steel industry is to maintain or increase its international competitiveness. Another related issue lurks behind the surface: the potential for producers to engage in some form of trade-restraining/supply-management activity. This concern stems primarily from two characteristics of the coking coal trade. First, quality coking coal is found in relatively few countries. Second, coking coal exhibits a high weight-to-value ratio, and therefore transportation costs assume an important role in determining c.i.f. costs. These factors interact to provide some producers, especially if acting in concert, with the potential to extract most of the available benefits from trade. This subject will be reexamined in greater depth in each of the following two chapters. For the present, suffice it to say that the possibility of such actions have been a long-standing concern to the JSM.

The overall task facing the JSM was a difficult one, since conventional economic wisdom suggests that greater security of supply inevitably results in increased purchasing costs. Hence, the JSM had to develop a set of policies which would reduce the opportunity cost of pursuing one objective at the expense of the other. However, it is unlikely that the policy makers ever seriously contemplated devising a system which would transform the inter-relationship between the objectives from one of conflict to one of mutual reinforcement. Yet, as I shall argue in the following chapter, there is substantial, if circumstantial, evidence to suggest that this indeed has been the outcome of the Japanese coking coal procurement policy.

⁴ See Joseph R. D'Cruz, "Quasi-Integration in Raw Material Markets: The Overseas Procurement of Coking Coal by the Japanese Steel Industry", pp. 108-111.

Model: Background Issues

In the process of devising a suitable procurement policy, the JSM faced a number of severe constraints, both political and economic in nature. Among the political problems to be overcome was an edict by the occupational forces prohibiting Japan from engaging in raw material trade with its former colonies.⁵ This forced the JSM into more distant markets, which in turn made it more difficult to attain low-cost supplies. Equally troubling was Japan's reputation, in the immediate post-WW II period, as a former colonial power. This problem was exacerbated by the rising tide of public opinion in the 1950s and 1960s against such activities. It is quite likely that the JSM recognized the severity of this problem and deemed any policy which relied heavily on Japanese owned, captive mines, located in LDCs, as an inherently risky strategy.

The economic constraints of the post-WW II period were equally severe. For example, the capital requirements of the reconstruction period placed heavy demands on domestic savings. This precluded the government from relaxing its strict controls on foreign exchange and investment activities until the early 1970s. Therefore, it was once again virtually impossible for the planners to rely heavily on Japanese owned, foreign-based, captive mines.

In formulating its procurement policies, the JSM had two major operational models from which to choose: the spot-market and captive mine models. However, each was quickly rejected: the former, because it did not meet the JSM's requirements; and the latter, because of the above described constraint set. Let us briefly explore each model.

The international coking coal market of the early post-WW II period, was dominated by spot market transactions. However, this approach was undoubtedly unattractive to the JSM. First, spot prices are highly variable, and in periods of rising prices such as prevailed throughout much of the 1950s and 1960s they tend to exceed the corresponding long-term contract price. Second,

⁵ A discussion of this issue can be found in Chalmers Johnson, MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975.

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spot-market supplies are widely perceived to be less secure than those forthcoming from captive or quasi-captive mines. Also of relevance was the fact that the spot market was dominated by USA-based suppliers at that time. Although the U.S. coal was of high quality, it was too costly, on a c.i.f. basis, to allow the JSM to acquire a competitive advantage in steel production.⁶ It is suggested that these factors were, in part, responsible for the JSM rejecting the spot market model as the foundation of a long-term procurement policy. In summary, the spot-market model did not provide adequate protection against supply interruption, nor offer the potential for purchasing supplies at less than "world" prices.

The second option, the captive mine integration model, was widely utilized by many of the JSM's competitors in North America and western Europe.⁷ Among the attractive features of this approach was that it virtually precluded collusive practices by suppliers and, under certain conditions, facilitated the transfer of some portion of deposit-specific locational and scarcity rents from producers to consumers of coking coal.⁸ In addition, this ap-

6 See Joseph R. D'Cruz, "Quasi Integration in Raw Material Markets: The Overseas Procurement of Coking Coal by the Japanese Steel Industry".

7 For a general discussion of the captive-mine/vertical-integration model see Richard Caves, *Multinational Enterprise and Economic Analysis* (Cambridge: Cambridge University Press, 1982) and Thomas G. Parry, *The Multi-national Enterprise: International Investment and Host-Country Impacts* (Greenwich, Connecticut: JAI Press Inc., 1980). For a coal-specific discussion, see Ben Smith, "Long-term Contracts for the Supply of Raw Materials", in John Crawford and Saburo Okita, ed., *Raw Materials and Pacific Economic Integration* (Canberra: Australian National University Press, 1978), pp. 229-270; and Jacqueline K. Maund, "The Implications of the Japanese Resource Procurement Strategy for Staple Resource Regions: An Examination of Coal Mining in Southeastern B.C.", unpublished M.A. dissertation, University of British Columbia, April 1984.

8 For discussions of the nature of rents, see Orris C. Herfindahl and Allen V. Kneese, *Economic Theory of Natural Resources* (Columbus, Ohio: Charles E. Merrill Publishing Co., 1974), chapter 4; Harry F. Campbell, W.D. Gainer, and Anthony Scott, "Resource Rent: How Much and for Whom?", in Anthony Scott, ed., *Natural Resource Revenues: A Test of Federalism* (Vancouver, B.C.: University of British Columbia Press, 1976), pp. 118-136; and Albert M. Church, *Taxation of Nonrenewable Resources* (Lexington, Mass.: Lexington Books, 1981).

Although not phrased explicitly in the context of rent appropriation, a good discussion of the potential distribution of the benefits conferred by preferential location can be found in Ben Smith, "Bilateral Monopoly and Ex-

proach, which can be denoted as the Vertical Integration Model (VIM), was expected to generate a more stable and secure flow of raw materials. Notwithstanding these attributes, the political and economic constraints discussed above effectively precluded the adoption of this approach. Thus, the JSM, with the strong support of the Ministry of International Trade and Industry and other organs of the Japanese government, were forced to develop a somewhat different model of resource procurement.

Model: Overview

The Japanese coking coal procurement system (JCCPS)⁹ did not develop instantaneously; instead, it is the product of a lengthy evolutionary process. Although this study focuses on coking coal and hence the role of the Japanese steel mills, the JCCPS has also been heavily influenced by broader forces. In particular, the Japanese government, primarily through the activities of the Ministry of International Trade and Industry (MITI), has long promulgated collective purchasing of raw materials.¹⁰ Further-

port Price Bargaining in the Resource Goods Trade", Economic Record March 1977, pp. 30-50.

9 Relevant studies which explore at least some aspects of the Japanese coking coal procurement system include Joseph R. D'Cruz, "Quasi-Integration in Raw Material Markets: The Overseas Procurement of Coking Coal by the Japanese Steel Industry"; Ben Smith, "Bilateral Commercial Arrangements in the Energy Coal Trade", in Stuart Harris and Toyoaki Ikuta, ed., *Australia, Japan and the Energy Coal Trade* (Canberra: Australia-Japan Research Centre, 1982), pp. 169-190; Heather R. Gibb, "Re-Examining 'Japan Incorporated': Japanese Coal Procurement and Western Canadian Coal", unpublished M.A. dissertation, University of British Columbia, October 1984; Jacqueline K. Maund, "The Implications of the Japanese Resource Procurement Strategy for Staple Resource Regions: An Examination of Coal Mining in Southeastern B.C."; Christopher E. Catliff, "Japan's Government and Steel Industry Policies Towards Coking Coal Procurement: The Implications of Industrial Restructuring for the Northeast Coal Project"; and H.N. Halvorsen, "New Coal Production from Southeastern B.C. Compared with Proposed Northeastern B.C. Development".

10 For details, see Chalmers Johnson, *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975* Raymond Vernon, *Two-Hungry Giants: The United States and Japan in the Quest for Oil and Ores* (Cambridge, Mass.: Harvard University Press, 1983); and Dani Rodrik, "Managing Resource

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more. MITI and other government agencies have encouraged Japanese raw material buyers to set up quasi-captive mines. These developments are tied to the consumer by long-term contracts and other financial arrangements - particularly the provision of soft loans. This approach is known as the "Develop and Import" (D&I) policy.¹¹ According to a 1970 MITI White Paper, the D&I policy is based on the following elements:

- Japanese companies should place a larger reliance on direct investment in foreign ventures to augment the normal vehicle of contractual purchases;
- Development projects should be carried out on a large scale to benefit from economies of scale;
- Projects should be dispersed in as many regions and in as many parts of those regions as possible;
- Local needs for an improved infrastructure should be met as far as practical.¹²

Dependency: The United States and Japan in the Market for Copper, Iron Ore and Bauxite", *World Development*, vol. 10, no. 7, 1982, pp. 541-560.

11 This important subject is discussed in T.E. Kolenda, "Japan's Development-for-Import Policy", *Resources Policy*, vol. 11, no. 4, December 1985, pp. 257-266; James Walsh, "The Growth of Develop-for Import Projects", *Resources Policy*, vol. 8, no. 4, December 1982; Terutomo Ozawa, "Japan's Resource Dependency and Overseas Investment", *Journal of World Trade Law*, vol. 11, Jan/Feb. 1977, pp. 52-73; Terutomo Ozawa, *Multinationalism Japanese Style: The Political Economy of Outward Dependence* (Princeton, New Jersey: Princeton University Press, 1979); Terutomo Ozawa, "A Newer Type of Foreign Investment in Third World Resource Development", *Rivista Internazionale di Scienze Economiche e Commerciali*, vol. 29, December 1982; and Makoto Sakurai, "Japanese Resources Investment for Australia", unpublished paper presented to the Workshop on Australia's Federal System, Resource Developments and Resource Trade, Australia National University, Canberra, 28-29 November 1983.

12 MITI, White Paper on Japan's Natural Resources, 1970 as cited in H.N. Halvorson, "New Coal Production from Southeastern B.C. Compared with Proposed Northeastern B.C. Development", p. 2-1.

Although the D&I policy is of relevance to this study, it will be largely ignored throughout the remainder of the text. This decision is based on several factors:

- a number of published documents are available which describe, in some depth, the evolution and general characteristics of the policy;¹³
- most of the available commodity specific work focuses on non-coal applications;
- the D&I policy may be considered to have helped shaped the coking coal procurement policy, but much of it has been formulated by the steel industry itself;
- the major coking coal suppliers to the Japanese market are, by and large, from developed economies whereas the available literature focusses on the application of the D&I policy to LDCs and newly industrialized countries (NICs).

Hence, for purposes of this study, the D&I policy is not explicitly addressed. Nevertheless, it is viewed as an important part of the political environment which helped shape the ultimate design of the Japanese coking coal procurement system.

The task confronting the policymakers was to devise an organization structure and to select a set of instruments which would help the JSM attain improved security of supply and a reduction in input costs. More specifically, the JSM sought a system which would reduce the severity of the trade-off relationship between these objectives, or, better yet, to change the relationship from one of conflict to one of mutual reinforcement. The primary strategy selected was that of supply diversification. It was undoubtedly expected that purchases of raw materials from multiple sources would lead to greater security of supply. However, conventional wisdom suggests that this policy should result

¹³ For example, the works of leading experts on the D&I policy, such as Vernon, Rodrik, and Ozawa address applications in non-coal commodities. The interested reader is referred to the bibliography for specific works by each researcher.

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in increased expenditures. This prognosis follows from the assumption that resources vary in quality and extraction costs, and are not uniformly distributed across the globe. Hence, some mines will be able to deliver coal to Japan at a substantially lower price than others. If the pre-JCCPS strategy was to purchase coal from the lowest-cost suppliers, then any attempt to diversify supplies must result in incremental outlays. In other words, diversification strategies can be expected to lead to increased expenditures. This view of the world will be challenged in the following chapter, where it will be argued that the JCCPS operates so as to simultaneously increase security of supply and reduce raw material costs.

The Japanese coking coal procurement system consists of two major components: an organizational structure and a set of policy instruments. Among the former are a coordinating committee, government agencies, and trading houses. The latter category includes several policy instruments which serve to both diversify sources of supply and to stimulate competition among suppliers. Let us now look at each element in turn.

Model: Organizational Structure

Coordinated Purchasing System

Since the late 1940s, MITI has encouraged a cooperative approach to the purchase of raw materials.¹⁴ Initially, this policy was promoted to ensure that economic rents were not dissipated through unnecessary competition between Japanese firms. In 1964, with MITI's blessing, the JSM formed a formal joint-

¹⁴ For an excellent analysis of MITI's overall role in the Japanese economy, see Chalmers Johnson, *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975*. Its role in the procurement of raw materials is described by Raymond Vernon, *Two Hungry Giants: the United States and Japan in the Quest for Oil and Gas* and Terutomo Ozawa, "Japan's Resource Dependency and Overseas Investment".

purchasing scheme to obtain iron ore.¹⁵ Shortly thereafter, the scheme was extended to cover coking coal.

Each major steel producer is represented on the coordinating committee.¹⁶ Although some producers appear to be more important than others, the coordinating committee undoubtedly attempts to achieve a consensus among its members, and with major government agencies, on critical issues affecting the procurement system. These issues include the selection of projects to be awarded long-term contracts, soft loans, and equity financing. In addition, the committee must reach agreement on the tactics to be employed in the annual price and tonnage negotiations.

The latter process requires elaboration. The coordinating committee makes an initial tonnage allocation between countries and individual coking coal producers, and also determines the bargaining sequence expected to yield maximum benefits. Furthermore, and perhaps critical to this study, the group decides when and where, and which new coking coal projects to support. For example, if it is determined that future demand for coking coal warrants the construction of new mines, as in the late 1970s, the Japanese steel mills will encourage developers to bid for the right to supply the Japanese market. The bids are carefully screened, and a collective decision is made as to the allocation of the incremental tonnage between countries and individual projects.

An important component of the collective decision-making mechanism, is the "lead negotiator" system.¹⁷ Under this scheme, each major coking coal exporting nation is placed under the

15 Dani Rodrik, "Managing Resource Dependency: The United States and Japan in the Markets for Copper, Iron Ore and Bauxite", p. 549.

16 The role of the JSM, as described below, draws equally from information obtained in personal interviews with industry and government officials in Australia and Canada in 1985, and on the available literature. More specifically, the following works were of major importance: Joseph R. D'Cruz, "Quasi-Integration in Raw Material Markets: The Overseas Procurement of Coking Coal by the Japanese Steel Industry"; and Christopher Catliff, "Japan's Government and Steel Industry Policies Towards Coking Coal Procurement: The Implications of Industrial Restructuring for the Northeast Coal Project".

17 For details, see Joseph R. D'Cruz, "Quasi Integration in Raw Material Markets: The Overseas Procurement of Coking Coal by the Japanese Steel Industry", pp. 147-151.

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jurisdiction of two member companies of the JSM: one acts as the coordinator, the other as the former's assistant. For example, Australia and the USA are assigned to the dominant steel producer, Nippon, while South Africa and Canada are assigned to the second largest firm, Nippon Kokan KK.¹⁸ As the name implies, the coordinator is responsible for all contract negotiations, new project developments, and infrastructure activities within its domain. In practice, this means that an Australian group wishing to develop a mine to service the JSM must conduct all negotiations through Nippon.

At the risk of repetition, it must be stressed that it is impossible for such a developer to by-pass Nippon - no other JSM member would discuss the proposal. Similarly, annual price and tonnage negotiations are also conducted through the coordinator. Thus, the consumer acts as a monopsonist. However, given the inter-firm negotiations which undoubtedly take place within the JSM, I have chosen to describe the market as oligopsonistic.

Trading Houses

The Japanese trading houses are important participants in the coking coal trade of the Pacific Rim;¹⁹ nevertheless, their role is sometimes overstated. This is due in large part to the coordinated purchasing system whereby the steel mills assume the dominant position in negotiations. Nevertheless, the trading houses play a useful role in the overall procurement strategy. They act as the "go-between" between the JSM and the individual producer. They approach the JSM in the first instance to see if a long-term con-

¹⁸ See Joseph R. D'Cruz, "Quasi Integration in Raw Material Markets: the Overseas Procurement of Coking Coal by the Japanese Steel Industry", p. 149.

¹⁹ For example, see Peter Szabo, "Role of the Japanese Trading Company in Setting World Coal Prices", *Mining Engineering*, January 1985, pp. 31-33; and Jon P.B. Vincent, "Australia's Mineral Resources: Rags or Riches?", unpublished paper presented to the Australian Institute of International Affairs, Western Australia Branch Seminar, Perth, 22 September 1984. For a general discussion of the role of Japanese trading houses, see Kunio Yoshihara, *Sogo Shosha: The Vanguard of the Japanese Economy* (Tokyo: Oxford University Press, 1982).

tract can be arranged; if successful, they will almost invariably be appointed as the steel mills' agent for the project. They also help arrange the annual negotiating sessions and coordinate discussions between the contracting parties.

It is important to stress that the trading houses represent, simultaneously, the buyer and the seller. There is some support for the proposition that the relationship is likely to be biased in favour of the JSM.²⁰ Nevertheless, most producers believe that the trading houses provide useful services. The real question is: in the long run, do Japanese trading houses facilitate the transfer of surplus from the producer to the consumer?

In closing, it should be noted that the trading houses are widely acknowledged to possess excellent information on coking coal markets. It is further suggested that it is accepted practice for this knowledge and data to be shared with the other important actors in the procurement system, the JSM and MITI.²¹

Role of Government Agencies

Business and government relations in Japan have been the subject of numerous studies.²² It can best be said that the relationships are close but ill-defined. Through such practices as "Amakudari", senior bureaucrats are placed in important management positions in industry, helping to foster a tight bond between the key sectors of the Japanese economy. Furthermore, it can be said that, although strong inter-firm domestic competition characterizes most industries in Japan including the steel industry, the private sector has generally cooperated with the government in developing and carrying out national policies. Obviously, the process is interactive, but certain groups such as

²⁰ This view is clearly promulgated in Peter Szabo, "Role of the Japanese Trading Company in Setting World Coal Prices"; and Jon P.B. Vincent, "Australia's Mineral Resources: Rags or Riches?".

²¹ See Peter Szabo, "The Role of the Japanese Trading Company in Setting World Coal Prices".

²² For an introduction to the subject, see Chalmers Johnson, MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975.

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the Ministry of Finance and the MITI have traditionally wielded great power. MITI in particular has continuously encouraged collective approaches when dealing with foreigners; for example, as noted above its seminal White Paper of 1971 promulgated the "develop and import" strategy.²³

MITI has also been very influential in other activities such as forecasting future requirements for raw materials. Indeed, some critics of the Japanese procurement strategy allege that MITI, through its forecasts, deliberately mislead suppliers and investors in order to encourage an over-supply of coking coal. This controversial allegation will be explored in more depth later in the following chapter, but its very existence suggests that the Japanese state is perceived to play a strong role in the overall resource procurement policy.

Model: Policy Instruments

This section contains a discussion of several policy instruments which may be utilized by the JSM in pursuit of their security of supply and cost minimization objectives.²⁴ The list includes policies in relation to long-term contracts, transportation, financing, investment, technological change, and supply-side competition. It will be shown that each instrument can be shaped and utilized by the JSM to facilitate attainment of their objectives. Let us now explore each mechanism in turn.

²³ Japanese Ministry of International Trade and Industry (MITI), 1971 *White Paper on International Trade*. For a discussion of the "develop and import" strategy, see Makoto Sakurai, "Japanese Resources Investment for Australia"; and Terutomo Ozawa, "Japan's Resource Dependency and Overseas Investment".

²⁴ The first four policy instruments discussed in this section formed D'Cruz's quasi-integration model. For details, see Joseph R. D'Cruz, "Quasi-Integration in Raw Material Markets: The Overseas Procurement of Coking Coal by the Japanese Steel Industry".

Long-Term Contracts

The long-term contract was the JSM's primary vehicle, especially in the early years, for developing a stable, diverse, and low-cost source of coking coal.²⁵ The approach can be characterized as follows. The steel mills would encourage the development of entirely new mining ventures in designated locations by providing the developers with a long-term contract. Such an agreement then served to convince the financial community and host governments of the wisdom of supporting the project.

These contracts were typically for a 15-year duration, and, at least in the early years, contained specific price guarantees and escalation formulas. Thus, the Japanese were able to obtain relatively secure supplies, at stable prices, in locations of their choosing. Over time, these developments were arranged so that the full array of coals required for blending purposes were provided by JSM-assisted quasi-captive mines.

The long-term contract vehicle was also expected to yield benefits to the host country.²⁶ It obtained development of otherwise unexploited resources. It was able to do so without giving up control, since the Japanese conscientiously avoided acquiring substantial equity holdings in coking coal projects. This was certainly a politically superior strategy to that followed by the MNCs', which have tended to demand and receive controlling interest in most projects which they promoted. It should also be noted that the JSM strategy facilitated domestic ownership and control objectives in other ways. For example, the long-term contract approach minimized the importance of international marketing skills. Thus, the domestic mining firm could slowly build up its knowledge

²⁵ In addition to D'Cruz's work on this subject, the interested reader is referred to the extensive writings of Ben Smith. For example, see "Long-term Contracts for the Supply of Raw Materials"; "Bilateral Commercial Arrangements in the Energy Coal Trade"; and "Bilateral Monopoly and Export Price Bargaining in the Resource Goods Trade", *Economic Record*, March 1977, pp. 30-50.

²⁶ For a discussion of the benefits of the Japanese procurement strategy to host governments, see Jacqueline K. Maund, "The Implications of the Japanese Resource Procurement Strategy for Staple Resource Regions: An Examination of Coal Mining in Southeastern B.C."; and Terutomo Ozawa, "A Newer Type of Foreign Investment in Third World Resource Development".

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of the intricacies of the coking coal trade, while simultaneously enjoying stable prices and high levels of output.

As expected, the use of long-term contracts allowed the JSM to stimulate new mine developments without expending scarce foreign exchange. Furthermore, the JSM were able to encourage developments in Australia and Canada, which are much closer to Japan than previous sources of supply. Fortunately for the Japanese steel mills, the Australian sources, especially the Utah International projects in Queensland, turned out to be extremely low-cost operations. Hence, the JSM were in a position to capture some or all of the new suppliers' locational rents.²⁷ In addition, until their debt was repaid, quasi-captive producers were not likely to attempt to break their contracts with the JSM.

It should also be noted that the Japanese steel mills were largely able to avoid the economic nationalism policies of the 1960s and the 1970s. That is, the Japanese were largely unaffected by the expropriations and severe economic rent capturing devices instituted in this troubled period.

Transportation

An integral part of the JSM's strategy was to ensure that virtually all of the mines developed with the aid of long-term contracts were incorporated into what D'Cruz called the "logistical linkage" system.²⁸ Under this scheme, mines were to be connected by efficient train systems to deep water ports capable of handling large-scale bulk carriers. It is interesting to note that all of the JSM-assisted developments in the Hunter Valley, Bowen Basin, British Columbia and Alberta, tie into such a logistical network. Furthermore, even within a given country, the JSM tried to ensure that multiple systems were available for the transport of export coal. Indeed, it has been said that one of the major reasons for the development of the northeastern B.C. deposits, as opposed to expansion of the southeastern B.C. deposits, was due to the steel industry's desire

²⁷ See footnote #8.

²⁸ Joseph R. D'Cruz, "Quasi Integration in Raw Material Markets: The Overseas Procurement of Coking Coal by the Japanese Steel Industry", pp. 172-178.

to ensure that Canadian coking coal exports were available through multiple access points.²⁹

It should be noted that in the 1960s the JSM arbitrarily switched from purchasing coal on a c.i.f. to a f.o.b.t. basis.³⁰ Thus the benefits of ocean-transport economies were captured by the Japanese steel industry.³¹ Given subsequent events, this has been an important source of cost savings for the steel mills.

Financing Arrangements

Over time, the JSM have increasingly relied on soft-loans and other forms of indirect subsidies to encourage specific developments. Although this has been particularly evident in the coking coal trade with China and the USSR, a number of Australian and Canadian projects have benefited from loans guaranteed by the Japanese Export/Import Bank and other government-controlled institutions. Furthermore, the mere fact that the Export/Import Bank is involved is frequently interpreted as a signal of strong government and industry support; this facilitates non-Japanese financial participation. On other occasions, the assistance takes the form of loans bearing interest below market rates - an indirect subsidy to the new mining venture.

²⁹ See H.N. Halvorson, "New Coal Production from Southeastern B.C. Compared with Proposed Northeastern B.C. Development".

³⁰ For a discussion of transportation issues in the context of Japanese procurement strategies see: Joseph R. D'Cruz, "Quasi Integration in Raw Material Markets: The Overseas Procurement of Coking Coal by the Japanese Steel Industry". The rationale for moving from a c.i.f. to a f.o.b.t. purchasing scheme can be found in: Dani Rodrik, "Managing Resource Dependency: The United States and Japan in the Market for Copper, Iron Ore and Bauxite", p. 550; and Stuart Harris and L.A. McMahon, "Coal Development: Issues for Japan and Australia", p. 90. For references in the financial press to the bargaining advantage possessed by the JSM due to their control over shipping, see Michael Byrnes, "Mills' Threat to Stop Ships", *Australian Financial Review*, 14 March, 1983; and Michael Byrnes, "Japan Presses for 20 pc Coal Price Cut", *Australian Financial Review*, 14 March 1983.

³¹ See Joseph R. D'Cruz, "Quasi-Integration in Raw Material Markets: The Overseas Procurement of Coking Coal by the Japanese Steel Industry" pp. 85-88.

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Equity Participation

Until the mid-1970s, the Japanese generally avoided taking an equity position in coal mining ventures. Even after the trading houses started to engage in this practice, the JSM generally avoided doing so for several years. Indeed, with one major exception,³² it was not until the early 1980s that they took a substantial equity position in a coking coal venture. The initial reluctance was attributed to several factors: foreign exchange controls; shortage of investment capital, given domestic market requirements of the post-war period; and the desire to avoid the political ramifications of foreign investment, particularly the imperialist overtones generated by the Japanese policies of the 1920s and the 1930s. For the latter reason, the Japanese may have been much more sensitive to the initial signs of economic nationalism in the 1960-80 period than, say, most MNCs.

Nevertheless, as time went on, the benefits of foreign direct investment became more attractive. For instance, such participation gives the investor representation on the management board of the venture, assuring access to more complete information. This was expected to help the steel mills in their overall bargaining strategy; however, other reasons may be postulated. Most such investments have been made by trading houses. By promoting a project to the development stage, they are likely to be designated by the steel industry as agent for the project, and they will then receive a commission from the sale of coal. Furthermore, the mills purportedly assign their finished products to trading houses in a manner which is highly correlated with the trading

³² The major exception is Westar Mining, formerly Kaiser Coal Ltd. In the late 1960s the company developed a large mine in Southeastern B.C. under the auspices of a long-term JSM contract. Unfortunately the venture floundered and was saved by the Japanese converting some loans into equity. Consequently, Mitsubishi and nine Japanese steel mills now hold 33 percent of the equity in Westar Mining Ltd. of Vancouver. This discussion is based on Jacqueline K. Maund, "The Implications of the Japanese Resource Procurement Strategy for Staple Resource Regions", pp. 20-22.

houses' total share of raw material sales.³³ If so, it is in the interest of the trading houses to promote projects. For instance, by taking an equity position they may be able to entice others to participate and hence develop a stronger proposal to place before the coordinating committee.

The latter scenario has received increasing credibility in recent years. As JSM contracts have been increasingly interpreted as not being contracts in the "western" sense of the word, financial institutions and host governments may have started to place greater importance on direct equity participation.³⁴ According to this argument, if financial institutions detect a meaningful Japanese equity involvement, they gain increased confidence that the project will receive preferential treatment in difficult times, and, at the very worst, will not be allowed to collapse. Indeed, some observers have speculated that the involvement of the JSM in the Quintette project in northeastern B.C. is an example of this argument being carried one step further: the banks wanted the JSM to directly participate in order to obtain the maximum possible degree of moral suasion over the steel mills.³⁵

The above analysis suggests that, aside from a possible desire to improve its information base, the increasing involvement of Japanese interests in foreign direct investment activities is best explained as a tactic for reducing the external investors' perception of political risk. This, in turn, reduces the real cost to the JSM of procuring long-term access to stable coal supplies. Furthermore, the Japanese have continued to avoid acquiring control and majority ownership. In order to minimize the impact of foreign direct investment on the political and economic environment of the host country, they have normally restricted themselves to an equity position between 10 percent and 35 percent.

³³ Joseph R. D'Cruz, "Quasi Integration in Raw Material Markets: The Overseas Procurement of Coking Coal by the Japanese Steel Industry", p. 152.

³⁴ See Raymond Vernon, *Two Hungry Giants: The United States and Japan in the Quest for Oil and Gas*, p. 102.

³⁵ See Heather R. Gibb, "Re-examining 'Japan Incorporated': Japanese Coal Procurement and Western Canadian Coal", p. 49.

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Supply-Side Competition

As previously stated, conventional wisdom suggests that an increase in security of supply inevitably leads to an increase in total procurement costs. This follows from the assumption that the lower cost deposits will be exploited first, and additional coal can only be produced at a higher long-run cost. Furthermore, given coal's high weight-to-value ratio, the geographical location of deposits is an extremely important factor in determining relative competitiveness; and specific countries can therefore be expected to possess strong cost advantages in given markets.³⁶ For example, Australia's hard coking coal producers are thought to possess a significant cost advantage, on a c.i.f. basis, over all other competitors in the Pacific Rim market.³⁷ If this is indeed the case, one would expect to see Australia dominate the Japanese market. Indeed, strict application of the cost minimization objective would imply that Australia should supply all of the JSM's requirements. Thus, if the JSM were to try to reduce the risk of relying solely on Australian supplies, they can do so only by simultaneously increasing their raw material costs. This suggests that the JSM's ability to diversify their sources of supply is severely constrained by their need to remain cost competitive in the production of steel.

Despite its obvious logic, the above analysis ignores reality. For instance, if the JSM were to rely totally on Australian suppliers, they would leave themselves open to short- and medium-term oligopolistic pricing behaviour. That is, the Australians could price up to the entry price of the next-lowest-cost producer and capture all available rents. Furthermore, Australian producers could conceivably collude with other producers. In practice, the limiting factor to such collusive behaviour is ultimately the U.S. entry price and, as we saw in the preceeding chapter, technological change. The USA, although a high-cost producer, is able to supply vast quantities of coal at roughly constant costs; its ability to do so has increased in recent years due to the decline of the U.S. domestic

³⁶ For an excellent expository presentation of the role of transportation costs in the development of regional markets see Ben Smith, "Bilateral Monopoly and Export Price Bargaining in the Resource Goods Trade".

³⁷ See the discussion of comparative supply costs in chapter 2.

steel industry. If the Australians were to act as monopolists or oligopolists, the Japanese could end up paying more than if they encouraged competition in the first instance by paying a premium price to Australia's competitors. For example, given that it takes three to seven years to bring a deposit into production, especially in virgin territory, Australian producers could exploit the prevailing short- to medium-term inelastic supply situation.³⁸ Thus, it may make sense for the JSM to ensure that sufficient capacity exists elsewhere to minimize the probability of this event. Therefore, the payment of a premium for supplies from non-Australian producers could, in fact, reduce the total raw material bill.

Implementation of this policy required the Japanese steel industry to foster development within the Pacific Rim in countries other than Australia, in order to place pressure on Australian producers. This has indeed occurred. Although Australia was undoubtedly viewed as a lower-cost producer than Canada, the latter has benefited from the JSM's apparent desire to constrain Australian imports to between 45 and 50 percent of the Japanese market.³⁹ Furthermore, the Japanese have fostered developments in China and in the USSR. Not only does this stimulate competition per se, but it dramatically reduces the likelihood of collusive behaviour. It is difficult to imagine that such a diverse group of actors could collude successfully, other than in the most unusual set of circumstances.

The judicious use of diversification and locational strategies can be shown to stimulate competition in other ways. For example, it may make sense to encourage the development of multiple supply points within each exporting nation; this is particularly

³⁸ This issue is discussed in greater depth in chapter 5.

³⁹ Based on interviews conducted by the author, these estimates are widely held in Australian academic, industry and government circles. Although published information is sparse, some supporting evidence exists; for instance, see Stuart Harris and L.A. McMahon, "Coal Development: Issues for Japan and Australia", p. 78; comments by H. Yokota of JCDC, cited in Australian Coal Association, Australian Background Paper for the Australia/Japan Coal Conference, Sydney, October 1981; Jack Wilcox, "New Market Opportunities", in Coal - A Reappraisal, Papers presented to the 1984 Australian Coal Conference, Surfers Paradise, Queensland, 2-5 April 1984; and Michael Byrnes, "Australia is out of Fashion in Japan", Australian Financial Review, 19 December 1983.

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desirable if the nation is a federation. This could lead to inter-state competition, as exists between Queensland and New South Wales and, to a lesser extent, between Alberta and British Columbia. It can be expected to help restrain rent-capturing activities; this follows from the widely held view that subnational governments tend to be growth oriented. Hence, developers can expect to rely on competition between the states to restrain taxation initiatives.

Less well known, but equally important, is the role of federal/state relations in the Japanese procurement strategy.⁴⁰ Although it may be entirely fortuitous (an event dictated solely by geological and locational considerations), it is possible that the JSM's strong affinity for investing in Canada and Australia is related, in part, to the political structure of these nations. Aside from the obvious bias in favour of private ownership, these countries may be attractive because they assign natural resource ownership rights to subnational units. Canada and Australia are the only major players in the Pacific Rim that do so. The effect of this action is to set up a strong set of counteracting forces within the nation.⁴¹

This suggests that attempts by the central government to capture rents will be aggressively fought by the individual states who will perceive their ownership rights to be under attack. On the other hand, unilateral action by a resource-rich subnational government is also constrained. Not only can other subnational

⁴⁰ The role of federal state relations in rent extraction policies has been widely discussed, especially in Canada. For example, see John Richards and Larry Pratt, *Prairie Capitalism: Power and Influence in the New West* (Toronto: McClelland and Stuart, 1979). Relevant studies, with an Australian flavour, also exist: see Stuart Harris, "Australian Resources Policy: Bargaining at Many Levels", CRES Working Paper 1984-1, Centre for Resource and Environmental Studies, Australian National University, 1984; Anthony Scott, *Central Government Claims to Mineral Resources*, Occasional Paper No. 8, Centre for Research on Federal Financial Relations, Australian National University, 1978; and Garth Stevenson, *Mineral Resources and Australian Federalism*, Research Monograph 17 (Canberra: Centre for Research on Federal Financial Relations, Australian National University, 1976).

⁴¹ The best known exceptions occurred in the 1970s, when provincial governments in all four western provinces attempted to capture substantially more rents and to increase their overall control over their nonrenewable resource activities. The best presentation of this dispute can be found in John Richards and Larry Pratt, *Prairie Capitalism: Power and Influence in the New West*.

units be expected to attempt to attract investment away from the deviant state, but the federal government, perhaps for reasons of international good will, may utilize moral suasion and its powers over external trade and foreign exchange to ensure that nationalization, for example, is only undertaken after the payment of adequate compensation. Similarly, if new subnational tax levies are thought to be confiscatory in nature, the federal government can be expected to ensure that they are subjected to the full scrutiny of the courts.⁴² Hence, in a federal state with state/provincial resource ownership rights, a set of checks and balances exist which aid the foreign customer in securing long-term access to resources. Such an institutional structure also fosters intra-national competition which may keep prices below the level they would otherwise attain.

In summary, diversification strategies can be utilized to stimulate competitive forces on the supply side of the market. In large part, these initiatives can be viewed as anti-oligopoly policies; this is an eminently reasonable tactic for a resource-poor nation, given the industrial structure of the supply side of the market. However, many observers suggest that this policy is no longer used primarily for defensive purposes; instead, it is said to be increasingly employed as an offensive weapon - an essential element in the JSM's aggressive oligopsony policy.

Technological Change

A vastly underrated element of the Japanese coking coal procurement system (JCCPS) is technological change.⁴³ It is widely recognized that the Japanese steel industry has been a worldwide leader in the refinement and implementation of steelmaking technology. As noted in the chapter 2, the mills dramatically reduced their coking rates over the 1950-80 period. For example, in

⁴² A good example of both these situations is the Saskatchewan potash disputes in the latter half of the 1970s; for details see *ibid* and David L. Anderson, *The Role of Mineral Taxation in Industry/ Government Conflict: The Case of The Saskatchewan Potash Reserve Tax* (Kingston: Centre for Resource Studies, 1981).

⁴³ See chapter 2 for a discussion of technological change in the steel industry.

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1963 it took 0.549 tonnes of coking coal to produce one tonne of steel; by 1979, the corresponding figure had declined to 0.423. This is an important outcome for a resource-poor nation, since it clearly reduces its vulnerability to supply interruptions. Similarly, overall coking coal procurement costs decline and, assuming that the technological change was cost effective, so do per-unit steel costs.

Another important factor with respect to simultaneous goal achievement has been the ongoing refinement of blending techniques. As previously discussed, Japanese steel mills have carried this art to new heights. For purposes of this study, the major benefit of blending is that it allows the JSM to utilize coals of diverse quality. For example, in the late 1950s and early 1960s, it allowed the Japanese steel mills to reduce their high rate of dependence on U.S. high-quality high-cost "hard" coking coal. The ability to utilize poorer-quality coals facilitated the development of additional supply points in much closer proximity to Japan. Indeed, it was the advancement in blending skills which provided the impetus for the development of the low- and medium-volatile low-fluidity deposits of Australia and western Canada.

The promotion of superior blending techniques may also be seen as an important anti-oligopoly policy: by making it possible for the JSM to purchase supplies from an increasing number of mines located in several nations, it has obviously reduced the possibility of collusive selling practices. Interestingly, this thrust has continued into the 1980s. The current emphasis is on the development of pulverized coal injection systems, briquetting and formed-coke techniques. If successful, such products will severely undermine the bargaining position of the hard coking coal producers. This outcome will be reinforced by the fact that non-coking and weak coking coals are widely available, generally from mines located closer to Japan than hard coking coal suppliers. Furthermore, it is highly unlikely that non-coking coal producers could organize an effective supply management scheme since such coals are widely available at roughly constant costs throughout the Pacific Rim.

In summary, the judicious and aggressive use of research and development activities has been an important component of the Japanese coking coal procurement system. Furthermore, as

will be discussed in the next chapter, it is likely to become its dominant instrument in the future.

Conclusion

The Japanese steel mills appear to have been relatively successful in devising a procurement system which has allowed them to diversify their sources of supply and to increase effective competition substantially on the supply side of the market. This has been achieved in part by the utilization of long-term contracts and other inducements which have encouraged suppliers to expand capacity. Indeed, in the late 1970s and early 1980s, in response to expected growth in steel demand and to external shocks such as the 1973 and 1979 oil crisis, the JSM entered into a series of contracts with suppliers to expand productive capacity by approximately 20 mtpa.⁴⁴ It is important to note that Canada received about half of the increment while Australia and the USSR received long-term contracts for eight and two mtpa, respectively.

Unfortunately for all concerned, the anticipated increase in the demand for steel never materialized. The extent of this shortfall is so substantial as to totally negate the need for the post-1980 coking coal capacity.⁴⁵ From the Japanese steel industry's perspective, the news has not been entirely bad. For instance, the capacity overhang has probably been the greatest single factor in providing the environment which has allowed it to attain the unexpected: the simultaneous achievement of declining real prices and, for at least the next decade, increased security of supply. This outcome has been aided by the nature of the cost structure facing suppliers and the financial plight of new entrants. These issues will be explored more fully in chapter 5. At this point, suffice it to state that, from a consumer's perspective, optimal conditions

⁴⁴ A useful source of information on this subject is the annual proceedings of the Australia/Japan Coal Conference, available from the Australian Coal Association.

⁴⁵ For instance, this view has been advanced by Jack Morrish, President, *Fording Coal* in an newspaper interview; see *Northern Miner*, 4 November 1985, p. 6.

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now exist on the supply side of the market: suppliers aggressively pursue sales in order to increase their utilization rates and to cover their cash-flow requirements. In contrast, from a supplier's perspective, the market can be said to be characterized by destructive competition.

In summary, the Japanese coking coal procurement system's organizational structure and selected instruments appear to have met with success. For instance, real prices have declined, additional supply points have been developed, a wide range of coals can now be utilized in BOF operations, an efficient Japanese controlled transportation system has been developed, and producers show no signs of being able to initiate effective oligopolistic action - instead, they display a remarkable tendency to engage in cut-throat and self-destructive practices.

All of these observations lead to the tentative conclusion that the Japanese steel mills have developed a surprisingly effective coking coal procurement strategy. Nevertheless, the rosy picture painted above is somewhat misleading. The scheme is under attack by suppliers and it is plausible to suggest that its very success in the short term is sowing the seeds of its own destruction. In the next chapter these issues will be addressed, primarily from a supply side perspective.

4. The Japanese Procurement System: Policy Analysis

Introduction

This chapter will provide an analysis of the impact of the JSM's coking coal procurement system on suppliers in Australia and Canada. The task will be pursued in several stages. First, the basic concerns of producers will be presented. This will be followed by an attempt to explain the JSM's overall policies in terms of two rather disparate schools of thought. The procurement system is then subjected to an overall assessment by the author. The chapter concludes with an overview of the findings.

Schools of Thought

In order to facilitate further discussion of the impact of the Japanese coking coal procurement system on suppliers, I shall focus the debate around two hypothetical schools of thought.¹ First, the "conspiratorial" proponents tend to blame the JSM for most of the problems facing suppliers. Furthermore, they suggest that the current situation is a result of a conspiracy on the part of the Japanese steel mills, the Japanese trading houses, and the Ministry of International Trade and Industry. The second group, denoted as the "anti-conspiratorial" proponents, enunciate the polar view. The JSM and associated agents are innocent of all charges: the current situation is attributable to fortuitous events and macroeconomic factors. Let us now proceed to a brief presentation of each school of thought. This will be followed by

¹ The two schools of thought presented herein are purely hypothetical. They represent the author's view of the polar positions advanced on the underlying rationale of the Japanese coking coal procurement system. In the main, the views presented were obtained from an extensive set of interviews with industry and government officials in Australia and Canada in 1985. To a lesser extent, the academic and trade literature provided ideas and enlightenment.

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an overall analysis of the procurement system and a somewhat different perspective on events.

Conspiratorial Model

General Observations

Although there has been ongoing debate in Australia about the nature of the Japanese procurement strategy for a considerable length of time, the controversy has intensified since 1982 and has also become a major issue in Canada and the USA. The problems became patently clear after the demand scenarios projected for the 1980s failed to materialize. For example, in 1979, authoritative Japanese sources were suggesting that steel production in 1985 would approach 130 mtpa;² by early 1982, the revised estimates were in the range of 100 to 105 mtpa.³ The latter estimates turned out to be exceedingly accurate.

According to industry officials, the extent of the excess capacity now overhanging the Japanese market is approximately 20 mtpa - the exact amount contracted for by the JSM during the 1980-81 period.⁴ As discussed in the preceeding chapter, this

² Japan Iron and Steel Federation estimate of June 1979 - cited in Katsushige Tanaka (General Manager, Fuel and Ferrous Materials Department, Nippon Steel), "Middle and Long Range Prospect of Demand of Coking Coal and our Stances for the Development of New Supply Sources in the Future", unpublished paper presented to the Australia-Japan Coal Conference, Brisbane, 12 May 1980, p. 1. For a more general discussion of forecasts in the 1979-80 period, see H.N. Halvorson, "New Coal Production from Southeastern B.C. Compared with Proposed Northeastern B.C. Development", unpublished study for the Council of Mayors of Southeastern British Columbia, June 1980; and H.N. Halvorson, "Forecast of Coal Mining Activity to 2002", unpublished report prepared for B.C. Hydro and Power Authority, March 1983.

³ "The Japanese Steel Making Industry and the Australian Coal", an unpublished paper presented by the Japanese delegation to the Australia-Japan Coal Conference, Tokyo, 1982.

⁴ For example, Jack Morrish, President, Fording Coal, is cited in the *Northern Miner*, 4 November 1985, p. 6 as suggesting that: "As a result, the entire capacity of all the new projects has become redundant, according to Mr. Morrish. In other words, this overcontracting has resulted in an annual over-supply of approximately 20 million tonnes of coking coal or about 30 percent

massive over-capacity situation has led to a steady decline in real prices and substantial cutbacks in contracted tonnage with existing producers. Furthermore, the producers perceive themselves to be bearing the full brunt of the over-capacity problem. In addition, some suppliers would dispute the idea that their current difficulties are the result of "mistakes"; instead, they suggest that the JSM deliberately engineered the problems which now beset the supply side of the market. Let us now address the nature of the allegations.

Specific Concerns

As noted above, some critics contend that the JSM deliberately created an oversupply situation which they are now exploiting in an aggressive manner. According to the critics, the JSM enticed the suppliers to build more capacity than was necessary through a variety of vehicles, and, with the aid of some rather devious practices, shifted the full burden of over-expansion on to suppliers. More specifically, concerns have been raised about Japanese practices with respect to forecasting, contracting, equity participation, and bargaining tactics. Let us now explore each in turn.⁵

Misleading Forecasts

One of the most unusual assertions is that the Japanese, especially MITI, deliberately deceived suppliers through the issuance of misleading forecasts. In particular, MITI is said to have been usually slow to correct its forecasts after it was apparent that steel

of the requirements of the Japanese steel industry." The interested reader is also referred to Appendix I, table 27.

⁵ The comments presented in this section are primarily based on interviews held by the author with industry and government officials, and some academics, in Australia and Canada in the period November 1984 to September 1985. The interviews were held on a non-attribution basis; hence, the following presentation is based entirely on my overall impressions of the concerns of many, but not all, of the suppliers interviewed. Written documentation on this subject is sparse, but where information has been located, it will be presented to support my observations.

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demand would not attain previously anticipated levels. Although the suppliers may have been sceptical of the estimates, they assumed that MITI and the JSM were the experts. According to this school of thought, the misleading forecasts led coal producers, bankers, and governments to expect growing markets in Japan, and raised expectations to the point that suppliers were willing to invest substantial sums of money in both new developments and major expansions of existing operations.

Undoubtedly, this argument is somewhat self-serving: a convenient way of shifting the blame for poor investment analysis on to others. While the Japanese misjudged the future rather badly, so did everyone else. The JSM/MITI view of the world in 1979-80 does not appear to have been radically different from the estimates of major non-Japanese forecasting groups. What can be criticized is that it appears to have taken the Japanese longer than others to realize that the problems were long run in nature and that their forecasts were in serious error. Japanese observers suggest that this is possibly an outcome of consensus style of decision making: it takes longer to publicly acknowledge a mistake, due to attempts to find "face-saving" devices.

As expected, the apologists view is not universally shared. For example, Nemetz et al. suggest a much more sinister view of the world.⁶ They assert that MITI forecasts are sometimes political documents conveying deliberate signals, and should be studied closely before being accepted. The following rather lengthy quote describes the nature of their concern:

It is important, however, to see these official MITI documents not simply as forecasts, but also as instruments of policy defence and implementation. They aim to draw attention to problem areas and opportunities, defend public resource allocations and trigger private-sector initiatives. . . . Consciously or not, MITI's highly visible and closely attended forecasts influence private confidential projections, even though it is recognized that MITI's work is subject to certain biases. By overestimating its figures,

⁶ P.N. Nemetz, I. Vertinsky and P. Vertinsky, "Japan's Energy Strategy at the Crossroads", *Energy Affairs*, 1984, pp. 552-576.

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MITI can thereby alter the forecasts and behaviour of other actors in the economy. . . . The timing of public releases of the various projections and the forms of commentary are (or appear to be) highly coordinated. These public releases, in turn, provide meaningful information and signals to the various actors in the energy field, including trading companies, banks, and industries.⁷

This view of the world is also widely shared in Australia. For instance, the Australian Coal Association, in a brief to the 1982 Australia-Japan Coal Conference stated:

In summary, we seek information or action in the following areas:

- the validity/reliability of Japan's demand forecasts. To this end, we seek information on the substance of assumptions and background in relation to the forecasts, and, in particular, the assumed nexus between energy growth and GNP growth and the prospects assumed for the energy intensive industries.⁸

Furthermore, in a rare display of unity, the Australian Labour unions have adopted a similar stance.⁹ Even Australian politicians have, on occasion, promulgated this line of thought.¹⁰ For exam-

⁷ *Ibid.*, pp. 560-561.

⁸ "Energy Coal Supply and Demand Conditions", unpublished paper presented by the Australian delegation to the Australia-Japan Coal Conference, Tokyo, 1982, p. 14.

⁹ See Mining Unions, National Liaison Committee, Supplementary Paper No. 1, "Market Forces and the Coal Industry", unpublished, Sydney, April 1983, p. 11.

¹⁰ For example, the former Minister for Trade, Hon. Lionel Bowen, stated: "The situation was exacerbated by consumers who had overestimated their requirements with the result that new supplies arrived on a stagnant market placing further downwards pressure on prices and tonnage for existing suppliers".

"We have argued, for example, that many minerals supply problems can be traced in some measure to distortions introduced by consuming countries such as single purchasing agencies, import quotas, national stockpiles

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ple, in early 1985 the Minister for Resources and Energy announced that a working party was being set up between Japanese and Australian officials to review energy forecasts.¹¹ Although not explicitly stated, the target was MITI forecasts, particularly those pertaining to steaming and coking coal.

In summary, the evidence is rather inconclusive with respect to the charge of misleading forecasts. Nevertheless, the belief is widespread that MITI has engaged in such practices.

Stimulation of Over-Capacity

A charge frequently encountered in the trade and financial press is that the JSM deliberately set about to induce an over-capacity situation. According to the proponents of this view, once such an outcome was generated, the JSM could count on normal market forces, stimulated at times by clever tactics, to lead to sharply declining prices. Smith suggests that "such mistakes could not rapidly be rectified but would rather result in depressed prices over a long period".¹² The "over-capacity" or "over-supply" proposition has been widely debated in Australia.¹³ Although not extensively

and inflated demand projections".

(Source: Lionel Bowen, "Role of Government in the Minerals Trade", Mining Review, August 1984, pp. 3, 7).

- 11 Senator Garth Evans, "Australia/Japan Co-operation on Energy Forecasting and Resource Development", Press Release 1/85, 16 January 1985.
- 12 Ben Smith, "Bilateral Commercial Arrangements in the Energy Coal Trade", p. 171.
- 13 For example, see the writings of Michael Byrnes: "The Coal Conspiracy"; "A New Ball Game for Coal", National Times, 13-19 March 1983; "Australia-Japan: End of a Special Relationship", Australian Financial Review, June 1983. Also of relevance is a lead editorial in the prestigious Australian Financial Review of 2 November 1982 ("Japanese Mills Call the Tune"). Of particular interest, are the following comments: "At the same time it is becoming increasingly clear in today's recession that the mills capitalized on the good times by encouraging massive industry-wide expansion in the production of Australian raw materials"; and "As the Australian coal trade surveys the bleak recessionary landscape, it is clear the Japanese mills have encouraged it to over-produce itself into a corner". On the other side of the political spectrum, note that the unions representing the miners state: "part of the problem of excess capacity stems from the behaviour of consumers in encouraging, by their distribution of contracts, the creation of excess capacity".

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discussed elsewhere, the issue has recently surfaced with some vigor.¹⁴ The most unconstrained attacks have been launched by U.S.-based officials. For example, Carl E. Bagge, President of the National Coal Association, states:

Then we can give attention to other problems we share, such as dealing with customers who deliberately encourage world over-production in order to play-off producers one against the other.¹⁵

The analysis found that by investment and encouragement you will have created by 1987 a world oversupply of coal in the neighbourhood of 24 million tons. While the American coal industry in good faith raised its own capital at high interest to serve a friend in need at a fair price, that friend was loaning money and technical assistance to others to create a 24 million ton oversupply and cutthroat practice. . . . As I understand it, this method requires feigning a weakness, and then the timing to make the opponent think you have jumped aside; then, as he relaxes, you attack. Machiavelli would have put it under divide and

(Source: Mining Unions National Liaison Committee, Supplementary Paper No. 1, "Market Forces and the Coal Industry", April/1983, p. 11).

¹⁴ For an overview of the Canadian debate, see Jacqueline K. Maund, "The Implications of the Japanese Resource Procurement Strategy for Staple Resource Regions: An Examination of Coal Mining in Southeastern B.C.", unpublished M.A. dissertation, University of British Columbia, April 1984; and Heather R. Gibb, "Re-Examining 'Japan Incorporated', Japanese Coal Procurement and Western Canadian Coal", unpublished M.A. dissertation, University of British Columbia, October 1984. The "over-supply" issue is briefly alluded to in: Philip Marchand, "North-East Coal: Did We Get Shafted", *Canadian Business*, September 1984, pp. 74-81; and Royal Commission on the Economic Union and Development Prospects for Canada, Report, Volume Two (Ottawa: Supply and Services, 1985) p. 473. The issue also surfaced at the Canadian Coal Association Conference, September 1985. For instance: "The major problem facing the Canadian coking coal producer is that of oversupply", according to Jack H. Morrish, President and Chief Executive Officer of Fording Coal of Calgary. . . . Mr. Morrish placed the blame for the current oversupply situation squarely on the shoulders of the Japanese steel industry . . ." (Source: "Fording Grapples with Oversupply on Japanese Market", *Northern Miner*, 4 November 1985, p. B(6)).

¹⁵ "N.A. Coal Producers Challenged Acid Rain", *Northern Miner*, 4 November 1985, p. 20.

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rule . . . A cowboy would simply call it dealing off the bottom of the deck.¹⁶

As noted previously, the critics contend that, through a multitude of instruments - i.e. disseminating misleading forecasts; industry speeches and private conversations which stressed the need for new mines; over-contracting; false signals conveyed by the availability of soft financing and minority equity participation; and games-playing in the bargaining process - the suppliers were induced to build too much capacity. As a result of the substantial degree of excess capacity now overhanging the market, it is unlikely that additional capacity will be required for another decade. During this period of time, excessive competition will ensure that the Japanese steel mills acquire coking coal supplies at prices substantially below that required to generate a normal rate of return on past investment. Indeed, prices may just exceed that required to generate positive cash flow.

Information Gathering

One of the recurring themes of the critics of the Japanese procurement strategy is that the buyer ends up knowing more about the producing mines than does the operator. This observation appears to possess some legitimacy. First, the long-term contract negotiation process requires the supplier to provide the JSM with detailed information on all aspects of the operation, including the mining plan and detailed financial feasibility studies. Second, the recent trend to minority equity participation, which normally leads to at least one seat on the management committee, provides an obvious conduit of information. Indeed, this point is often raised as a reason for restricting customer equity in natural resource projects.¹⁷ However, the amount of incremental infor-

16 Carl E. Bagge, "The Samurai and the Cowboy On the Road from Norfolk", unpublished paper presented to the United States - Japan Coal Conference, San Francisco, 21 May 1984, p. 4.

17 For a discussion of this issue, see Australia Foreign Investment Review Board, 1981 Report 1981 Report (Canberra: Australian Government Publishing Service, 1982), pp. 28-47; and David L. Anderson, Foreign Investment Control in

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mation obtainable from this vehicle is probably quite limited. The third major source of information is the ubiquitous Japanese trading house. As noted earlier, they are widely acclaimed for their information systems; most observers suggest that their findings are freely available to the JSM.

The critics assert that this information enables the steel mills to refine their rent-capturing activities. Indeed, it is only by way of such detailed information that they can institute multiple pricing systems for similar products. If prices are too low, they will force producers out of business (something they are said to be loath to do); if prices are too high, they will leave rents on the table (something the JSM is also purportedly loath to do).

Unfair Bargaining Tactics

It should be stressed that the word "unfair" is subjective and value laden. For example, the use of a coordinated purchasing system is, in itself, considered unfair by some observers. This reaction would appear to be based on a strong belief in the competitive model, wherein welfare-maximizing outcomes are generated, in part, by the presence of atomistic sellers and buyers. If only the former operate in this fashion, then the market may degenerate into one characterized by oligopsony; this in turn, can be expected to lead to suboptimal levels of global welfare. Rephrased, the buyers win at the expense of the sellers, and the total economic welfare of the system is reduced. If oligopsony exists and results in non-trivial violations of welfare-maximizing conditions, then one would expect the sellers to be perturbed; but to accuse the buyers of unfair practices is rather naive, and perhaps even "unfair". The competitive model rests on the assumption of economic man pursuing profit and utility maximization objectives. Thus, unless the appropriate checks and balances exist within the system, it is perfectly logical to expect that, as Adam Smith did, the natural outcome of such a system is some form of collusive behaviour.

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More specifically, numerous complaints exist with respect to the basic nature of the coordinated purchasing system. Paraphrasing the critics, the objections are as follows.¹⁸ First, the JSM insist that all negotiations take place in Tokyo. This is said to place the seller at a competitive disadvantage. Second, the trading houses act as go-between, a condition insisted upon by the JSM. Although trading houses nominally represent both parties, the general consensus is that they place the interest of the steel mills at the top of their list. Furthermore, the meetings are arranged to suit the JSM: times are changed at their discretion; meetings are cancelled without notice; negotiators are left to worry in hotel rooms for hours at a time without knowledge of when they will be called upon to perform next.

The actual bargaining tactics are also criticized.^{19,20} Perhaps the best known, and probably the most fundamental element in the overall negotiating package, is the "first batter" principle. According to many industry observers, the coordinating committee first directs its attention to the weakest link in the chain, the one most susceptible to a "sweetener".²¹ Thus, in return for agreeing

18 The following comments are, once again, largely based on discussions held by the author with industry and government officials. However, many of the issues denoted herein can be found in: Peter Szabo, "Role of the Japanese Trading Company in Setting World Coal Prices", Mining Engineering, January 1985, pp. 31-33; and Michael Brynes, "Dealing with Japan Inc. - The Inside Story", National Times, April 8-14, 1983.

19 In addition to the references listed in the preceding footnotes, the flavour of the "actual" bargaining tactics, as perceived by the seller, can be found in the Australian financial press. For example, see Michael Brynes, "The Coal Conspiracy", National Times, November 28 to December 4, 1982; Glen Dyer, "South Africans First to Feel Pressure of Japanese Mills", Australian Financial Review, 21 January 1983; Deborah Snow, "Coal Deserters to Face Government Backlash", Australian Financial Review, 1 May 1984; Brian Robbins and Glenn Dyer, "Australian Coal Exporters Crumble", Australian Financial Review, 16 November 1984; and Michael Gill, "Japanese Play It Hard", Melbourne Age, 24 November 1984.

20 For an extremely vitriolic attack on Japanese bargaining tactics, see Carl E. Bagge, President, National Coal Association, "The Samurai and the Cowboy on the Road from Norfolk".

21 For references to incentives being offered to those willing to sign contracts early in the negotiating process, see Deborah Snow, "Coal Deserters to Face Government Backlash"; Michael Gill, "Japanese Play it Hard"; Brian Robbins

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to accept the price that the steel mills wish to promote as the new world price, the first in line is presented with an offer that it cannot refuse. This usually amounts to preferential treatment with respect to tonnage, normally an increase in allocation when it is expected that everyone else will receive a substantial cut. As noted earlier, tonnage is extremely important to open-cut producers; indeed, an increase in capacity utilization can have the same effect on the firm's net profit position as an increase in price.

Although the first batter may be reasonably well treated, the rest suffer. The next group to sign usually receives the new world price and approximately the average tonnage adjustment. However, according to the critics of the JSM, the recalcitrant are frequently treated in a rather harsh fashion: they can expect to also be offered the new world price, but they receive less favourable treatment with respect to tonnage allocation. Even if this does not occur, they may find that in practice the JSM up-take of their contracted tonnage is substantially below average. Although the above cannot be proven, it represents the prevailing view of many suppliers in both Canada and Australia. Furthermore, even the Japanese coal bible, the Coal Manual, has commented on the practice of punishing the recalcitrant:

In addition, in the fiscal 1985 supply negotiations, a Luscar mine operator wanted to prevent the repetition of the unfair treatment it received in closing the fiscal 1984 contract because the contract was signed somewhat later than those of the other Canadian coal shippers.²²

A similar view has been expressed by a former Australian Minister of Trade:

Mr. Bowen said that an unsatisfactory feature of negotiations was the Japanese steel mills' ability to take advantage of the vulnerability of individual Australian exporters to pressures in regard to contract tonnage levels

and Glen Dyer, "Australian Coal Exporters Crumble"; Glenn Dyer, "South Africans First to Feel Pressure of Japanese Mills"; and Hiroyuki Horie, Coal Manual, 1985 Edition (Tokyo: Tex Report, 1985), p. 101.

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in a situation where there is an oversupply of hard-coking coal world-wide. In this regard Mr. Bowen said he was concerned that some companies which were reluctant to agree to the reduced prices have been penalized by the Japanese steel mills with reduced tonnage levels for 1984 delivery.²³

Perhaps the strongest evidence to support the allegations that the Japanese steel mills exercise significant market power is their current practice of paying widely varying prices for coal of similar quality. Furthermore, they purchase a higher proportion of contracted tonnage from high-cost than from low-cost producers. Such actions are clearly inconsistent with the theoretical properties of competitive markets. I shall now provide supporting evidence for these allegations and then discuss selected ramifications of these unusual price/tonnage policies on the western Canadian coking coal industry.

Nowhere does the JSM's differential pricing/tonnage system operate with greater visibility than in British Columbia.²⁴ In this province, a three-tier pricing structure is in place for coal which is, to all intents and purposes, of similar quality.²⁵ For example, in 1985/86,²⁶ mines developed prior to 1980, the so-called traditional producers, located in the southeastern of the province, received slightly less than \$70/tonne (f.o.b.t.). However, the new mines lo-

²³ Hon. Lionel Bowen, Minister for Trade, Japanese Hard-Coking Coal Negotiations, Press Release 84 30, 2 May 1984.

²⁴ The following discussion of differential pricing/tonnage systems draws heavily on David L. Anderson, "Japanese Coking Coal Procurement Policies: Some Implications for Canadian Producers", Northern Miner Magazine, vol. 1, no. 3, March 1986.

²⁵ See Donald W. Barnett, "Export Coal Costs in Australia, Canada, South Africa and the USA", Materials and Society, vol. 9, no. 4, 1985.

²⁶ Available information for fiscal year 1986/87 suggests that the price spreads are not as large as reported herein. Nevertheless, the three part pricing arrangement still remains in force. For supporting evidence see "Japanese Cut Volume, Price of Balmer Coal", Globe and Mail, 16 January 1986, p. (B7); "Westar Accepts Lower Prices from Japanese Coal Buyers", Northern Miner, 31 March 1986, p. 6; and "Teck Agrees to Decrease Price of Coal", Globe and Mail, 19 August 1986, p. (B13).

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cated in this area obtained approximately \$80/tonne. Furthermore, the new mines in northeastern B.C., Bullmoose and Quintette, reportedly received \$94/tonne. A similar situation existed with respect to the actual up-take of contracted tonnage. For instance, traditional producers delivered only 55 percent of the quantity specified in their agreements with the JSM; the corresponding figures for the new southeast operations were in order of 80 to 90 percent. On the other hand, the JSM was willing to assume 100 percent of Quintette's contracted tonnage and adjusted Bullmoose's initial target upwards by 300,000 tonnes per year for a 3-year period.

These price and tonnage practices suggest that the steel mills are attempting to provide a target rate of return or a minimum net cash-flow payment to each producer; for expositional reasons, I shall label the scheme as the "cost-plus" reimbursement model.²⁷ In crass terms, the scheme is apparently designed to ensure that, at one extreme, no one goes out of business, and, at the other extreme, that no one acquires substantial economic rents.

²⁷ For evidence that cost-plus reimbursement appears to be the JSM's objective and/or is, indeed, occurring, to some extent, see: Maxwell Gaskin, *Organization and Structure of the Pacific Steam Coal Trade*, EAS Report G4 (London: International Energy Agency, October 1983), pp. 55-56; Ben Smith, "Bilateral Commercial Arrangement in the Energy Coal Trade", in Stuart Harris and Toyooki Ikuta, ed., *Australia, Japan and the Energy Coal Trade* (Canberra: Australia-Japan Research Centre, 1982), p. 182; Harold Jones, Chairman, Australian Coal Association Export Committee, "Australia - Japan Trading Issues", unpublished paper presented to the Australia-Japan Coal Conference, Tokyo, 29 October 1984, p. 4; Heather R. Gibb, "Re-examining 'Japan Incorporated': Japanese Coal Procurement and Western Canadian Coal", p. 43; H.N. Halvorson, "Forecast of Coal Mining Activity to 2002", p. 47; Brenda H. Dyack, *Western Canada's Coal Industry: Status and Potential*, Discussion Paper No. 278 (Ottawa: Economic Council of Canada, 1985), p. (v-15); Peter Kittredge and Lorne Sivertson, "Competition and Canadian Coal Prices in the Japanese Coking Coal Market", *CIM Bulletin*, September 1980, pp. 104-105, 107; Donald W. Barnett, "Rail Freight and the Cost of Australian and North American Export Coal", *Journal of Business Administration*, vol. 15, no. 1-2, 1985; and Donald W. Barnett, "Export Coal Costs in Australia, Canada, South Africa and the USA". Indirect support for this view has also been provided by a senior JSM official: see T. Imai, Managing Director, Nippon Steel, "The Current Situation of the Japanese Steel Industry", unpublished paper delivered to the Canada-Japan Businessmen Cooperation Committee, Nagoya, Japan, May 1986, pp. 7-9.

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The cost/plus reimbursement model has a number of implications for coking coal producers and for governments. First, I shall address some positive attributes of the model. Perhaps the most important benefit of the JSM's compensation strategy is that it has facilitated the survival of a number of new mines which would likely have ceased operations if they had been forced to accept the prevailing world price. Similarly, it is doubtful that the new ventures could have survived a substantial cutback in tonnage. Thus, to some extent, the cost/plus model protects public and private investments in new projects. However, as evidenced by Denison's recent write-off of its equity investment in the Quintette project,²⁸ a policy providing for positive but minimal net cash-flow provides little assistance to equity holders.

It can also be claimed that the JSM's differential price/tonnage scheme is likely to enhance investors' perceptions of future Japanese-assisted resource projects. This follows from the fact that, at a substantial cost to themselves, the JSM ensured the survival of those projects which they actively encouraged to enter production. For instance, at an incremental cost in excess of \$150 million per year,²⁹ the JSM continue to purchase higher-cost northeast B.C. coal rather than lower-cost supplies available from traditional B.C., Alberta, or Australian producers.

At this point it should be acknowledged that, without the JSM's willingness to engage in differential pricing and output pol-

²⁸ See "Denison: Forced Write-Off", *Mining Journal*, vol. 306, no. 7849, 24 January 1986, p. 67; and "Denison: Write-Offs Mask an Otherwise Good Performance", *Mining Journal*, vol. 306, no. 7851, 7 February 1986, pp. 101-102.

²⁹ This represents the direct subsidy only to these two operations. It is derived as follows: production of coking coal is approximately 5.0 mtpa and 2.0 mtpa at Quintette and Bullmoose, respectively; the price premium over equivalent coal from the old southeastern B.C. producers is in the order of \$ (Can.) 25/tonne. Note, however, that it is much more difficult to establish the total subsidies; in fact, none may exist. One must consider what the price would be if the incremental production from Quintette and Bullmoose did not exist. It can be argued that the excess capacity depresses the "world" reference price; if so, the total subsidy may, in fact, be a tax - a transfer of surplus from the producers to the consumers. However, it must be acknowledged that others suggest that the "high" prices paid to the northeast B.C. producers results in higher prices to all producers since the Japanese bargaining position is weakened by this blatant case of price discrimination.

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icies, it is unlikely that the western Canadian coking coal industry would exist in its present form. The Japanese steel mills have historically paid a premium, albeit much smaller than that discussed above, for supply diversification purposes. This practice has helped Canadian producers, who tend to be somewhat higher-cost than their Australian counterparts.

On the other hand, the cost/plus model has its limitations. The most obvious and perhaps most serious problem is that the traditional producers are expected to bear most of the costs associated with recent investment mistakes. That is, as discussed above, the traditional producers are forced to accept substantial price and volume cut backs in order to bring the market into equilibrium. A second, but related, problem with the use of such a scheme is that it effectively prevents the market mechanism from operating in its traditional manner. For instance, if all coal of a similar quality received the same price (c.i.f.), then producers not able to cover their variable costs would eventually drop out of the market. This would gradually result in a higher price for the remaining more efficient firms. However, the guaranteed positive cash-flow model effectively precludes such an outcome.

Some industry officials argue that the differential price/tonnage model is employed, not out of any sense of generosity and loyalty, but rather as an essential element of the JSM's procurement system. For example, the payment of a premium to new suppliers increases the pressure on traditional producers to accept lower prices. If they accept sufficiently large price cuts, then the JSM benefit from the differential price/tonnage policy. Given the nature of the demand and supply structures characterizing the Pacific Rim coking coal market, it is quite likely that the steel mills are net beneficiaries from the adoption of these policies.

Finally, it should be noted that the use of "cost/plus" reimbursement systems are potentially damaging to the supplying nation's economic welfare. Under such schemes, any economic rents that may exist are largely appropriated by the consumer, not the producer.³⁰ Furthermore, corporate profits and direct taxation

³⁰ See Ben Smith, "Bilateral Commercial Arrangements in the Energy Coal Trade", p. 182. More specifically, Smith states: "It is evident that, even if they were acceptable to Australian exporters, pricing formulae based on cost plus reasonable profit would not provide appropriate returns for Australian re-

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receipts are severely constrained. Thus, the primary benefits occur through direct and indirect employment effects, foreign exchange earnings, and other spin-off benefits. Indeed, it has been suggested by some observers of the industry that, if account is taken of the impact of new developments on traditional producers and their associated employees, suppliers and communities, the net benefits to Canada and B.C. from some of the post-1982 coking coal mine developments may have been exceedingly small, if not negative.

In conclusion, the differential price/tonnage activities of the JSM provide strong evidence of excessive consumer power in the market place.

Summary

In summary, the JSM's critics see a master plot, a grand scenario, at work. They see the Japanese steel mills as working to create an over-supply situation; once this is in place, it is relatively easy for them to obtain their twin objectives of increased security of supply and reduced prices.

As expected, this somewhat polarized view of the world is not universally shared. Let us now move to a discussion of the other extreme.

Anti-Conspiratorial Model

The deliberate over-supply thesis is strongly criticized by many observers, both within and outside of the coking coal industry. However, they do not argue against the fact that massive over-capacity clouds the coking coal market, nor against the suggestion that the situation will remain in place for at least several years. Instead, they challenge the basic tenet that it is the

source developments. The capital input into coal mining includes not only the investments of the companies, but also the allocation of a community capital asset - the resource deposit itself. Market pricing may be expected to reflect the ultimate scarcity of coal resources in a way that 'cost plus' pricing will not".

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result is of a set of conspiratorial actions.³¹ In general, the proponents of the anti-conspiratorial or "accident" theory suggest that most of the problems were caused by an unanticipated decline in the long-term demand for steel, much of it related to the economic malaise currently affecting most market economies, including that of Japan.

More specifically, they suggest that the coal suppliers and bankers have themselves to blame: they chose to ignore the obvious signs that steel demand was levelling off, and sometimes undertook rather suspect financial analysis. Governments are also to blame: they distorted the market signals by providing subsidies, either directly or indirectly. This led to projects that were attractive to private investors, not because of their underlying economics, but because of the subsidies dispensed by governments blindly pursuing pro-growth objectives. While it is natural that governments, especially in times of high unemployment and slow growth, seek to encourage new economic activity, in this instance they chose to ignore the impact of expansions on the prices received by the very projects they were trying to encourage, as well as on mines already operating within their domains.

Furthermore, the anti-conspiracy advocates stress that it would have been foolish for the Japanese to have deliberately created an over-supply situation. First, their own money was involved, especially with respect to post-1980 developments; in other words, it is unlikely that anyone would knowingly invest in a project expected to return losses. Second, the current situation is costly to the JSM: they are paying premium prices for coking coal from the very projects they are accused of enticing into production. In the case of the northeastern BC projects, the subsidy amounts to approximately \$150 million per annum.³² Such a premium is not likely to have been anticipated and is said to be inconsistent with exploitation of an over-supply situation: if the JSM wanted to fully

³¹ For a strong reaction to the conspiracy theory, see Heather R. Gibb, "Re-examining 'Japan Incorporated': Japanese Coal Procurement and Western Canadian Coal"; and Christopher E. Catliff, "Japan's Government and Steel Industry Policies Towards Coking Coal Procurement: The Implications of Industrial Restructuring for the Northeast Coal Project", unpublished M.A. Dissertation, University of British Columbia, December 1985.

³² See footnote #28 for details.

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exploit the strong bargaining position they currently find themselves in, they would pay the world price and save themselves millions of dollars.

It is further argued that the JSM are unlikely to deliberately drive down the long-run price below that required to yield a normal rate of return on capital. If replacement investment is not undertaken, the Japanese steel mills will find themselves paying substantially higher future prices than if they paid a price sufficient to encourage ongoing exploration, development, and maintenance activity.

Finally, those promulgating the "accident" theory suggest that a certain amount of over-contracting is normal business behaviour.³³ Historically, the JSM over-contracted by approximately 15 to 20 percent per annum to take account of probable supply interruptions, primarily attributable to strikes, and new mines taking longer to enter commercial production than anticipated. However, with the advent of tougher economic times, strike activity has declined substantially. Furthermore, since alternative markets are difficult to find, suppliers have not been tempted to under-supply the steel mills; this apparently occurred in the past, especially on the part of U.S. operators. Similarly, new mines came on stream on schedule and the older operations have had time to resolve their production problems. Admittedly, in depressed times, the practice of over-contracting makes the JSM look bad, but it was not undertaken for sinister reasons; it was based on accepted commercial practices.

The allegation that forecasts were deliberately misleading is not treated seriously by the anti-conspiratorial school of thought. They quickly point out that the Japanese forecasts were quite consistent with those of the major international public and private forecasting bodies. Everyone was caught up in the euphoria of the late 1970s. Although the primary attention was devoted to steaming coal, the enthusiasm also seemed to seep over to the coking coal market. Furthermore, very few experts anticipated that

³³ Once again, the strongest defence is provided by Heather R. Gibb, "Re-examining 'Japan Incorporated': Japanese Coal Procurement and Western Canadian Coal". Also see Maxwell Gaskin, Organization and Structure of the Pacific Steam Coal Trade, p. 64.

the economic downturn of the early 1980s would be as severe and as persistent as it has been.

Finally, the furor created by the Japanese steel mills' practice of granting preferential treatment to new suppliers is also defended as showing rather starkly that the JSM, and Japan in general, can be counted on to honour legal and moral commitments.

In summary, it is apparent that, for virtually every allegation against the JSM's procurement scheme, there is a ready explanation. Let us now turn to a detailed assessment of some of the more important criticisms of the Japanese coking coal procurement system - especially the charge of deliberate over-contracting.

Analysis

It is apparent that the JSM's policies have been largely successful: real prices have declined and supply is extremely secure. The primary factors responsible for these events are the rapid expansion of productive capacity in the post-1980 period and, at the same time, the failure of steel demand to reach forecasted levels. The resulting capacity overhang of approximately 20 mtpa in the Japanese market has had the obvious effect of suppressing prices and increasing security of supply. These facts are not in question. What is under dispute is whether the JSM engineered the outcome and whether their activities are detrimental to the welfare of their suppliers. Let us now explore these questions.

First, there is little doubt that, given their long-term objectives of increasing security of supply and minimizing acquisition costs, the steel mills had to find ways of diversifying their sources of supply and of increasing supply-side competition. The latter policy was shown to be an important element of the JSM's anti-oligopoly policies. Hence, it is quite likely that the mills sought to create some degree of slack or over-capacity in the supply side of the market. However, the real question is: does it make economic sense for the JSM to deliberately pursue such a policy in the longer run?

Perhaps the best analysis of this critical question has been supplied by Smith in his pioneering theoretical study of market

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power in the Australia/Japan coking coal trade.³⁴ Smith found that, under certain restrictive assumptions, it indeed made sense for a monopsonist with market power to deliberately create over-capacity. However, if the new production is relatively high cost, if prices must be sufficient to yield the new projects a normal rate of return, and if the old producers must also receive a price equivalent to that received by new producers, a limit clearly exists on the JSM's ability to engage in unnecessary supply generation.

Smith's work is important in two respects. First, in his finding noted above that under certain conditions it may make sense for a monopsonist, to stimulate unnecessary capacity. Second, he notes that the policy is more likely to be successful if the steel mills are able to engage in price differentiation; that is, if the buyers are able to entice new production into the market by ensuring that they alone will receive the higher price required to cover their full cost of production. In this way, the rents otherwise captured by the infra-marginal producer are, in effect, appropriated by consumers.

Despite outlining the attractiveness of this scenario, Smith rejected it as being impractical. He believed that it was politically impossible for the JSM to undertake explicit price differentiation practices. However, events have shown Smith to have been unduly conservative since numerous examples exist of the steel mills paying substantially different prices for essentially the same coal. Thus, one might hypothesize that the more efficient firms are being exploited, in the sense that most if not all of the economic rents that they could generate are now appropriated by the JSM.

This procedure, wherein the Japanese steel mills have, in effect, placed producers on a cost/plus reimbursement system,³⁵ is strong evidence that the buyers are exercising oligopsonistic power. The potential rents are being appropriated by the consumers,³⁶ and each producer receives just enough revenue to cover long-run average costs. Indeed, some would argue that the

³⁴ Ben Smith, "Bilateral Commercial Arrangement in the Energy Coal Trade", pp. 169-190. It should be noted that the primary arguments in this section draw heavily upon Smith.

³⁵ See footnote #26.

³⁶ See footnote #30.

producers are merely able to cover their cash-flow requirements. Economic theory clearly shows that this outcome can only occur in a market displaying a significant degree of monopsonistic power; it is quite inconsistent with the assumptions of the perfectly competitive model. In the latter, one of the key assumptions is that all producers of a homogenous product receive the same price, ignoring transaction and transportation costs.

It is important to note that cost/plus reimbursement practices can be pursued not only through differential pricing, but also through manipulation of capacity utilization rates.³⁷ Reference to recent practice shows that the old producers have suffered substantially more than new producers in contracted tonnage cutbacks. Such differential practices are explained by the Japanese as "fair" treatment: the new mines need higher utilization rates in order to survive. While this sounds equitable and honourable, it is a practice fully consistent with cost/plus reimbursement and the stripping of rents from the supplier.

The effect of the tonnage cutbacks is to further ensure that the excess supply is purchased at minimum cost. Since capacity utilization is an extremely important factor in determining unit costs for open-cut coal producers, due to the high capital intensity of these operations, producers can, once again, be constrained to their long-run average cost curves.

Before closing the discussion of differential pricing, it should be noted that the policy is constrained, to some extent, by the ill will which it creates.³⁸ For example, the steel mills are experiencing increasing difficulty in justifying the preferential treatment that

³⁷ As will be discussed in greater depth in chapter 5, open-cut coking coal mines are highly capital intensive; hence, the firm's long-run average total cost curve displays significant economies of scale over much of the operating range. Hence, the adequacy of any price, from a producer's perspective, is critically dependent upon its capacity utilization rate. Thus, if a buyer wishes to ensure that both high-cost and low-cost producers cover their total costs of production, while receiving a common price, they merely have to adjust the contracted tonnage level to generate the required differential capacity utilization rates. If the cost levels are too disparate, this approach will not succeed.

³⁸ See Maxwell Gaskin, *Organization and Structure of the Pacific Steam Coal Trade*, p. 56. For a broader reference to "ill-will" limiting Japan's oligopsonistic tendencies, see P.N. Nemetz, I. Vertinsky and P. Vertinsky, "Japan's Energy Strategy at the Crossroads", p. 575.

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they accord northeast B.C. producers. Although this is diffused to some extent by stressing to the old producers the temporary nature of the subsidy, the argument is growing increasingly thin as time goes on.³⁹ As we shall see in subsequent chapters, such blatant discrimination risks polarizing the public and politicians into actions that they would not otherwise consider. Even the strongest market advocates could be forced into condoning cartel-style behaviour if they believe that they are being unduly exploited by oligopsonistic behaviour.

It is possible that the deliberate over-capacity creation argument has even greater merit than Smith's work suggests.⁴⁰ Recall that he assumes that all producers receive a satisfactory long-run rate of return on their investment. This assumption can be shown to be unduly restrictive in at least three ways. First, even if the JSM are forced to pay higher prices in the long run to ensure a satisfactory level of output, one must compare the present value of the savings associated with current practice to the present value of the future incremental costs associated with higher long-term prices. The outcome is not intuitively obvious.

Second, the Japanese steel mills could, once again, stimulate an over-capacity situation by relying on past tactics. However,

³⁹ This issue surfaced again at the most recent Australia/Japan Coal Conference on 24 October 1985. For example, Roger Marshall, Director, MIM Holdings Ltd. stated: "We believe that prices should be such that similar quality products should attract similar prices, independent of the source of supply. In doing so, subsidizing high cost producers at the expense of more competitive suppliers would be avoided. This would be an advantage to the Japanese consumers who would receive their raw materials at a cost which would allow them to be as competitive as possible". (Roger Marshall, "Issues in Australia-Japan Trade Relations", Australia/Japan Coal Conference, Sydney, 24 October 1985). Although not responding to the call for uniform pricing for similar quality coal, a Japanese steel mill official did comment on the curtailment of the differential tonnage policy: "My second point is on adjustment of intake tonnage of coking coal. The current problem of supply and demand adjustment is so hard that we are approaching a stage where not just traditional mines, but also new project mines will have to be included in objects for tonnage adjustment we are coming to a situation where we can no longer afford to maintain the present intake level from new project mines". (Kazuja Kinoshita, Senior Managing Director, Sumitomo Metal Industries Ltd., "The Current Status of the Japanese Steel Industry and Supply and Demand of Coking Coal", Australia/Japan Coal Conference, Sydney, 24 October 1985).

⁴⁰ Ben Smith, "Bilateral Commercial Arrangements in the Energy Coal Trade".

one would expect that investors and host governments would be more discerning and cautious in the future, given their past experiences. Nevertheless, the outcome is not obvious since the lessons of history are not always well remembered. Despite this qualification, there must be a limit to the number of times that such tactics will succeed.

The third response, and probably the most important one, is that the future may be quite different than the past. Although the Japanese are acknowledged to adopt a much longer time horizon than their Western associates, they may now be placing less weight on the future, with respect to coking coal, than has historically been the case. This follows from the discussion contained in the preceding two chapters. First, the basic oxygen furnace (BOF) is being continuously replaced by mini-mills. Second, technological change may result in a dramatic increase in the use of weak and non-coking coals. Thus, the role of coking coal may be substantially less important to the JSM of the future than it has been in the past. This suggests that a policy that exploits the current over-capacity situation beyond the point consistent with long-run replacement of the current level of activity may in fact be consistent with the long-run objectives of the JSM.⁴¹

Other arguments exist with respect to the deliberate over-capacity creation thesis. For instance, it is sometimes alleged that the wide-spread presence of Japanese equity participation in post-1980 projects in Canada and Australia⁴² is inconsistent with the concept of deliberate over-capacity creation. Two responses are in order. The mere existence of customer equity is not inconsistent with an investment policy expected to yield a low, or even a negative, rate of return on the funds expended. That is, customer equity can be viewed as part of the cost of stimulating excess capacity; it must be compared to the expected benefits

⁴¹ This does not mean that prices are suppressed to the point at which no further investment is undertaken; only to the point at which some fraction of current output capacity is replaced. In addition, this argument assumes that the long-run supply curve remains relatively stable over time.

⁴² Although somewhat dated, a useful summary of proposed Japanese equity participation in post-1980 developments can be found in H.N. Halvorson, "New Coal Production from Southeastern B.C. Compared with Proposed Northeastern B.C. Development", table 2.1.

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(reduced prices paid to infra-marginal producers) in order to determine the optimal level, if any, of such activity.

The more difficult case to explain is the more common one: Japanese trading house equity participation. As previously stated, trading houses receive a commission on the sale of both coking coal and finished steel products, with the former activity influencing the JSM's allocation of finished steel to individual trading houses. Thus, the trading house's major objective is to promote projects which may gain long-term contracts from the steel mills. Indeed, one technique for doing so is to encourage high profile investors and mining houses to partake in a project. This in turn may be more readily achieved if the trading house itself displays a commitment to the project via direct investment. This outlay may be more properly viewed as a form of "key" money, a payment for the right to obtain a sales contract, than as a traditional equity investment.

In summary, the mere participation by Japanese institutions in the equity structure of new projects should not be accepted as proof that they are acting as normal investors who expect the project to yield a normal rate of return. However, it must be acknowledged that this could be the rationale. This presentation is merely intended to indicate that customer equity participation is not inconsistent with a deliberate over-capacity scenario.

One of the strongest arguments against the "over-capacity" thesis is that the steel mills, by their very actions, end up paying more for their inputs than some of their competitors, namely those located in South Korea and Taiwan. If this is the case, why would the JSM deliberately provide their competitors with a competitive advantage? The rationale for this line of thought is as follows. It is widely known that Japan acts as the price leader in the Pacific Rim.⁴³ Therefore, South Korea and Taiwan gain whatever advan-

⁴³ This is a widely held view throughout the Canadian and Australia coking coal industry. Although public information is scanty, the view was promulgated on two occasions at the Curragh court case (more properly, Curragh Coal Sales Pty Ltd. v. Wilcox, Bowen and Walsh) by J.M. Wilcox, formerly responsible for the administration of the EPS, and now Chairman of the Joint Coal Board. Wilcox states: "What we did was to recognize the Indians, as they did last year, would rely heavily on what happened in the Japanese market". (Source: Curragh v. Wilcox, Transcripts, 29 June 1984, p. 128). "It is common ground that the price paid by the Japanese steel mills are the single most important

tages the JSM obtain from their collective procurement system without incurring all of the costs. More specifically, they do not have to pay the substantial subsidies required to keep recent entrants operating. Hence, on a weighted average basis, the Japanese steel mills probably pay a higher price (f.o.b.t.) for their coking coal inputs than do mills in South Korea and Taiwan.

Is this outcome inconsistent with deliberate over-capacity generation? That is, by doing so, do the Japanese steel mills hurt themselves and aid their competitors? The response is straightforward. Although it is probably correct to say that producers in South Korea and Taiwan do benefit by the JSM's actions, both countries were small-scale producers when the key policy decisions were made in the late 1970s. If one ignores these two nations, it is safe to say that the Japanese steel mills have probably improved their competitive position *vis a vis* their major competitors, especially those in North America and Europe. Many of them must, for political and financial reasons, buy substantial tonnage from high-cost domestic sources. Any attempt to reduce prices to the world level involves creating either losses in another part of the corporate empire or political problems attributable to mine closures. Furthermore, the role of transportation costs in the coking coal trade acts to cushion the impact of price reductions in one market or another. Therefore, declining prices in, say, the Pacific Rim, undoubtedly make foreign markets more attractive to traditional Japanese suppliers, but they may still not be able to compete effectively.⁴⁴

In summary, the overall policy may still result in a comparative advantage for the JSM over their primary competitors, despite the generation of spill-over benefits for a few small competitors. However, it must be admitted that South Korea's dynamic steel industry is a growing threat to the JSM and that it has undoubtedly been aided by the JSM's procurement policies,

determinant of price in the Asian market". (Source: Curragh v. Wilcox, Transcripts, 29 June 1984, p. 195).

⁴⁴ For an excellent discussion of bilateral bargaining and the distribution of the potential gains from trade in the context of the Australian and Japanese coal trade, see Ben Smith, "Bilateral Monopoly and Export Price Bargaining in the Resource Goods Trade", Economic Record, March 1977, pp. 30-50.

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especially their insistence on integrated infrastructure systems and their over-supply policies.

It should also be noted that the extent of the subsidies paid to recent entrants, especially those in northeast B.C., was probably unanticipated. It is attributable, in large part, to the fact that steel demand did not reach anticipated levels. Although it has led to fortuitously low world prices, it has widened the gap between the price required for the survival of new projects and the base price. This has, of course, had positive effects on the JSM's procurement costs but has also created political problems. It has created resentment in Australia, since the more blatant subsidization activities have occurred in Canada; it has alienated the traditional suppliers who perceive themselves to be bearing the brunt of the costs generated by over-capacity; and it has exposed the workings of the JSM's procurement strategy to further scrutiny. In particular, it has led to examination of the JSM's cost/plus reimbursement practices, the reliability of their long-term contracts, and their role in stimulating excess capacity.

Perhaps the weakest allegation against the Japanese coking coal procurement system is that the Japanese deliberately enticed the development of new projects through misleading forecasts. While Nemetz's⁴⁵ charges undoubtedly have merit, Japanese forecasts for coking coal demand were, in general, no more optimistic than those of most international forecasting agencies. Indeed, as Halvorsen clearly shows,⁴⁶ the Canadian and B.C. government forecasts were generally in excess of those of MITI and the Japanese steel industry throughout the critical period of 1975 to 1982. Even if some discrepancy did exist, one would expect mining companies and financiers to be somewhat wary of any customers' claim about the future, especially when hundreds of millions of dollars are at stake.

Criticisms of the JSM's bargaining tactics also seem somewhat misguided. It is probably accurate to describe the steel mills

⁴⁵ P.N. Nemetz, I. Vertinsky and P. Vertinsky, "Japan's Energy Strategy at the Crossroads", *Pacific Affairs*, pp. 553-576.

⁴⁶ H.N. Halvorsen, "Forecast of Coal Mining Activity to 2002", p. 28. Halvorsen's diagrammatic presentation is reproduced herein as Appendix I, Figure 4.

as skillful bargainers, perhaps even ruthless. But surely this is part of the game. It is natural, in a bargaining situation, to identify the weakest link and to exploit it to establish a bench mark or reference point. It also is a well-established practice to reward the compliant and punish the recalcitrant.

The objections to the JSM's tactics are essentially signs of frustration. There is no evidence to suggest that, during periods of strong market conditions, the suppliers failed to exercise whatever leverage they possessed over their customers, including the JSM. Indeed, the literature abounds with references to suppliers demanding renegotiation of contracts or failing to deliver contracted tonnage.⁴⁷ What is different is the response. The Japanese steel mills begrudgingly complied with the producers' demands since they had no choice; however, it would appear that during the 1970s they conscientiously set out to ensure that the situation would not repeat itself. On the other hand, now that the producers find themselves in difficulty, they bemoan the fact. This is a natural short-term response, but it appears that their anger is heightened by the fact that they are unable or unwilling to take the steps necessary to offset the buyers' tactical advantage.

Conclusion

The coordinated purchasing system is designed to ensure that the Japanese steel mills have secure access to coking coal at the minimum possible price. A major part of the strategy is to foster competitive forces to suppress the price of coking coal to the minimum level consistent with an adequate long-run supply. This procedure undoubtedly involves ensuring, among other things, that the mills have access to supplies from many nations and, within each major supplying nation, that they have access to multiple delivery points. Furthermore, as a prudent nation concerned about security of supply, it is quite natural for it to over-contract to yield a high probability that it will receive its desired supplies. In addition, it was shown that one of the best ways of

⁴⁷ For example, see Ben Smith, "Bilateral Commercial Arrangements in the Energy Coal Trade", p. 180.

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maintaining competitive pressures on suppliers is to ensure that the markets are characterized by substantial excess capacity.

Thus, it is apparent that the charge that the JSM/MITI deliberately created the current depressed conditions in the coking coal market is largely correct. What is distressing is the suggestion that there is something immoral or perverse about such actions. In fact, the Japanese steel mills are only following normal business practices; they are attempting to achieve their objectives at the minimum possible cost. In many ways the charges are statements of frustration by suppliers unable, or unwilling, to generate adequate policy responses to defend their interests.

One only has to review past events to observe that, in times of rising prices, suppliers frequently broke their contracts or coerced the JSM into contract renegotiations. The buyers had little choice but to comply in the short run. In the longer run, the consumers set out to ensure that such events would be much less likely to reoccur. This was accomplished by appealing to the natural enthusiasm, greed, and, to some extent, naivete of suppliers in market economies. Furthermore, the JSM/MITI were undoubtedly assisted by the economic recession of the 1980s, which even they are unlikely to have foreseen.

To the outside observer, the question must be: Why would anyone play such a game if the odds are stacked against them as suggested by the above scenario? The best response is that, to some extent, it is the only game in town. Japan, as we observed in chapter 2, is the world's largest market for coking coal. Furthermore, it is widely acknowledged as the price leader throughout the Pacific Rim. Given the high weight to value ratio for coking coal, the location of the supplier severely constrains its options. Thus, western Canadian and Australian producers frequently have a competitive advantage over others in the Pacific Rim; alternatively, to compete successfully in other markets involves bearing an extremely heavy transportation charge. It is this range of costs, the difference between the f.o.b.t. price obtainable by suppliers in non-Japanese markets and the c.i.f. price that Japan would have to pay for coal from non-Canadian and non-Australian suppliers which defines the bargaining range.

The suppliers believe that the Japanese steel mills are appropriating a disproportionate share of the available surplus. Given the current excess supply situation, which the former sug-

gest is not an exogenous event, the bargaining power is clearly in the hands of the buyers. This is further reinforced by the use of the coordinated purchasing system and associated bargaining tactics discussed above. If the suppliers believe that they are being abused, exploited, and deceived, then they must address the options open to them. Given that they continue in the game suggests that the JSM have left them with some of the gains from trade. However, this is not to suggest that they do not have a right to be unhappy and discontented.

In summary, the major conclusion which should be drawn from this chapter is that Australian and Canadian producers should stop bemoaning the tactics of the Japanese steel mills. Instead, they should have attempted to develop a set of responses which minimize the substantial market power wielded by the buyers. In the next chapter, I shall explore the characteristics of suppliers which makes it difficult for them to avoid the JSM's game. Furthermore, it will outline, albeit in a conceptual manner, some of the possible responses open to producers to off-set the apparent imbalance of bargaining power now held by the consumer.

5. Supply Characteristics and Cartelization Policies

Introduction

In order for Canadian and Australian policymakers to initiate remedial action to alleviate the adverse effects of the Japanese coking coal procurement system, they must thoroughly understand the industry's cost structure. Only in this way will they be able to determine which anti-oligopsony policies are most likely to generate long-run benefits. In this chapter, I shall explore these issues in some depth.

More specifically, the chapter initially provides for an examination of selected aspects of the coking coal industry's cost and incentive system. This is followed by a discussion of the prerequisites of a successful cartelization or supply management scheme. The chapter concludes with a review of some of the anti-oligopsony policies available for selection by Canadian and Australian policymakers.

Cost Functions and Incentive Systems

Overview

Coking coal is produced from both open-cut and underground mines. Since the 1960s, most new mines in Australia and western Canada have been of the former variety. Indeed, virtually all of the projects assisted by the Japanese steel industry have been large scale, open-cut operations. Furthermore, they can be said to be highly capital intensive,¹ and consequently marginal cost lies

1 For instance, see Manfred G. Raschke, "The Structure of the International Coal Trade in Transition", in William R. Bush, ed., *Economics of Internationally Traded Minerals* (Littleton, Colorado: Society of Mining Engineers, 1986), pp. 102-103. Indirect support can be found in various studies by Donald W. Barnett. For example, see: *The Supply of USA Thermal Coal Exports to 2000* (London: International Energy Agency, 1985); "Rail Freight and the Cost of

significantly below average total cost. This phenomenon is an important factor in explaining both current market behaviour and the frequently-heard pleas for the initiation of collective selling practices.

Furthermore, most studies understate the degree to which the coking coal industry is characterized by high fixed costs. This follows from the fact that the preceeding analysis assumes that labour costs are totally variable. Although this assumption may have validity in the longer run, it is somewhat tenuous in the short to medium term.² For example, the costs of hiring and firing are non-zero and hence short-term fluctuations in demand will often be endured without textbook layoffs. Furthermore, the coal industry is characterized by a strong union movement; hence, it is frequently difficult to treat labour as if it were an infinitely variable commodity. Consequently, firms may be hesitant to lay workers off until they are convinced that the downturn in demand is not transitory. This policy is reinforced by the fact that labour force retrenchments may result in costly severance payments and that it may be costly to reestablish the work force. The latter argument applies with particular force to Canadian and Australian coking coal producers with mines in relatively remote locations.

The extent to which labour is viewed as a fixed cost will also vary from nation to nation. For instance, the U.S. labour movement is generally considered to be considerably weaker than its Australian counterpart. Consequently, U.S. producers are more likely to view labour as a variable cost than are their Australian competitors. The Canadian view is probably somewhere between the Australian and American positions.

This discussion has important consequences. For instance, in the short and medium term, Australian producers may perceive their real fixed-costs:total-cost ratio to be much higher than conventionally measured accounting estimates would suggest. If this is the case, it will encourage firms to compete aggressively,

Australian and North American Export Coal", *Journal of Business Administration*, vol. 15, no. 1-2, 1985; and "Export Coal Costs in Australia, Canada, South Africa and the USA", *Materials and Society*, vol. 9, no.4, 1985.

² For a mineral-related but not a coal-specific discussion of this issue, see Marian Radetzki, *State Mineral Enterprises: An Investigation into their Impact on International Mineral Markets* (Washington: Resources for the Future, 1985).

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since any sale which yields a net revenue figure in excess of the producer's "low" marginal cost estimate will be deemed to be beneficial to the firm. However, the outcome may be disastrous to the industry and, in the longer run, to the very firm initiating the price cut. Let us now explore the rationale for these statements.

Destructive Competition

In this section, I shall draw heavily upon the work of Scherer³ to illustrate, in a conceptual fashion, the incentives facing a firm with a capital-intensive cost structure and a declining market. In order to do so, a number of simplifying assumptions must be made. First, all firms in the industry are assumed to be members of a joint profit-maximizing cartel. In essence, they operate as if they were branch plants of a profit-maximizing monopolist: they produce up to the point at which each mines' marginal cost (MC) equals the industry's marginal revenue (MR).⁴ Second, it is assumed that each firm faces a "constant share" demand curve; and third, for any price, all demand curves display a constant elasticity. Let us now demonstrate the differential performance of two hypothetical operations: a low and a high fixed cost mine, designated as Firm A and Firm B, respectively.⁵

From figure 2 note that by construction, Firm A, the low fixed cost mine, displays a fixed-cost:total-cost ratio of 0.15 at 85 percent capacity utilization; the corresponding figure for Firm B is 50 percent. Furthermore, note the presence of three demand curves: D1, D2, and D3, representing states of relative prosperity, recession, and depression. In the first instance, let us assume that the applicable demand curve is D1. Following the decision rule

3 F.M. Scherer, Industrial Market Structure and Economic Performance, second edition (Boston: Houghton Mifflin, 1980).

4 See any standard microeconomics text for details. For instance, see C.E. Ferguson and J.P. Gould, Micro-Economic Theory, 5th edition (Homewood, Illinois: Richard D. Irwin, 1980).

5 It must be re-emphasized that the following discussion is heavily drawn from F.M. Scherer, Industrial Market Structure and Economic Performance, chapter 7.

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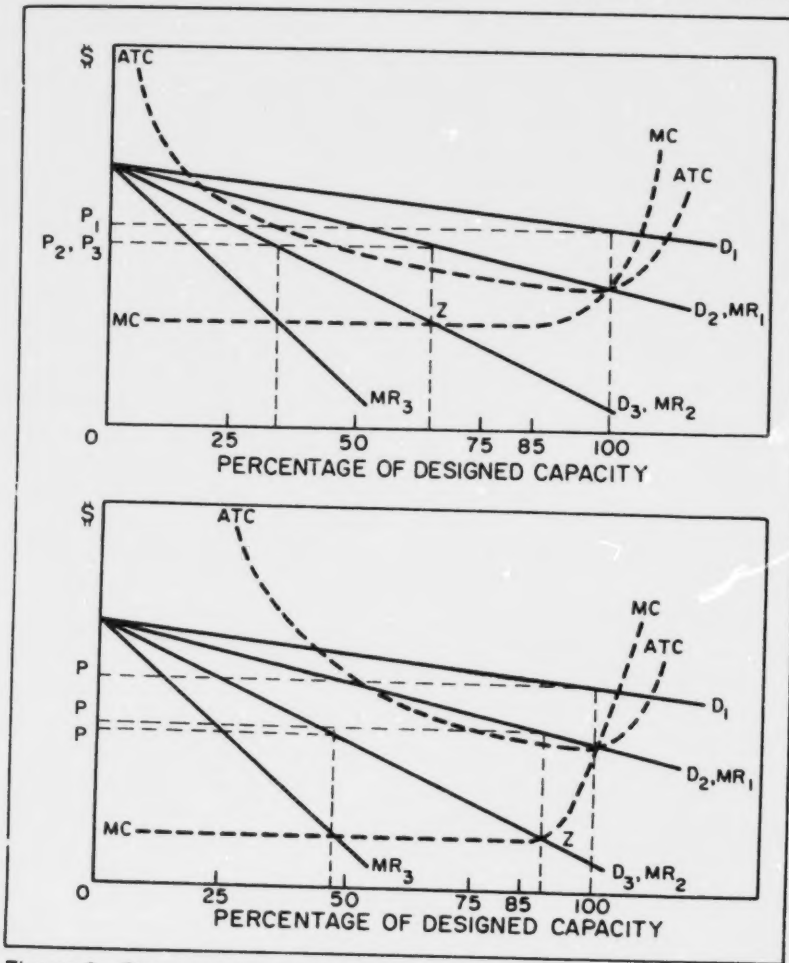


Figure 2. Comparative Cost Structures of Firms with Low and High Fixed Costs

Source: F.M. Scherer, *Industrial Market Structure and Economic Performance*, Second Edition (Boston: Houghton Mifflin, 1980), pp. 206, 207).

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MC = MR, both firms operate at 100 percent of design capacity, receive a price of P1, and earn substantial profits.

If we now assume that a mild recession hits the industry, each firm now faces the demand curve D2. Furthermore, if the industry is characterized by type A firms, joint profit maximization would require such firms to cut their output to 65 percent of capacity, and to reduce their selling price to P2. Note that type "A" firms are still profitable, albeit at a rather modest level.

On the other hand, if all firms faced high fixed costs as represented by Firm B, quite dissimilar results would apply. The industry-wide and, by assumption, firm-specific profit maximizing position would occur at a capacity utilization rate of 90 percent and a selling price of P2. Note that this price is substantially lower than that charged by type A firms; on the other hand, the capacity utilization rate is much higher - 90 percent versus 65 percent. Nevertheless, Firm A and B earn a small profit of roughly equivalent size.

Let us now assume that a severe recession descends upon the industry; the relevant demand curve is now D3. Firm A responds by reducing its output to 30 percent of capacity. However, due to the peculiarities of draftmanship, its selling price remains unchanged. Note that Firm A now incurs a small loss; nevertheless, this is still the firm's optimal price and output combination. The situation facing Firm B is dramatically different. It will reduce its output to roughly 45 percent of capacity and its price slightly to P3. However, inspection reveals the firm to be incurring substantial losses. Indeed, it can be shown that the losses for Firm A and B are 5 percent and 27 percent of costs, respectively.

Scherer suggests that an industry characterized by type B firms is unlikely to be able to sustain such losses for a considerable period of time; in fact, he suggests the following consequences:

Unable to meet dividends and interest payments out of earnings, the firm's decision-making horizon shortens. Its managers turn all their attention to immediate remedies, ignoring the risks of diminished profits from weakened industry discipline in the uncertain future. They see that if additional business could be secured by quietly undercutting joint profit-maximizing price OP3 slightly and moving

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off the constant-shares demand curve along a "rival price constant" curve, operation at higher capacity levels would be possible, overhead could be spread over more units of output, and losses could be reduced or even (if capacity utilization could be increased to 90 percent) eliminated. Some firms in Firm B's straits will choose to take the chance.⁶

This quote starkly reveals the quandary facing producers in difficult times: if they follow industry-wide profit maximizing tactics, they will incur substantial losses. This leads producers to shift their attention from the common good to their own selfinterest, particularly if the firm's survival is at stake. If a producer believes that it can capture more of the market by leaving the cartel, it will slightly under-price the official price, and if others do not follow, it will capture increased sales and increased profits (or reduced losses).

Unfortunately, if the industry faces the cost and demand structure exhibited by Firm B, the deviant firm will not achieve its goal. Its competitors are not likely to sit back and watch their market share decline and their loss position worsen, while the "outlier" thrives. A price war will inevitably break out, with the only winners being the consumers. In fact, the outlier's price reductions will be matched until the price has fallen to the point where $P = MC$: that is, point Z on figure 2. If this outcome were to transpire, all firms would be incurring losses much larger than before the price war commenced. On the other hand, the consumer obtains a larger quantity of output at a much lower per-unit price.

Policy Implications

Although some coking coal firms have higher fixed costs than others, the industry can be said to be a high fixed-cost industry. The policy implications of this analysis are of significance to this study. For example, at any given price level, especially in de-

⁶ Ibid., p. 208.

pressed conditions, substantial pressure exists on individual suppliers to under-cut the market. Although coal producers appear to be aware of the market's interdependence, some will choose to ignore the probable ramifications of retaliation.

Nevertheless, in the real world, such actions are not necessarily irrational. This follows from the fact that in times of depressed markets some producers will invariably face cash-flow difficulties. These problems tend to plague the new entrant more than the traditional producer, for the following reasons: larger debt servicing costs; start-up problems; and, perhaps, a lower rate of capacity utilization. All of these factors will increase the new firm's average total costs and thus worsen its cash-flow position, vis-a-vis its competitors. This phenomenon may cause management to adopt an excessively short time horizon. If they fail to do so, they may be replaced or the mine itself may close. It is a normal response, when faced with such a quandary, to accept the survival option and hope that its price-cutting initiatives are not matched by the majority of its competitors. Furthermore, the deviant firm can hope that the market will improve before the price-cutting war gets under way. If this takes place, it will enjoy the best of both worlds - improved profits in both the present and the future. However, the tactic is dangerous for all concerned.⁷

Given the cost and demand structure facing the industry, price cutting injures all producers. In a closed economy, such costs are normally denoted as pecuniary externalities and, as such, have no impact on the nation's aggregate economic welfare since the losses by the producers are offset by the gains to consumers. However, if the commodity in question is exported, then the analysis becomes much more complex: now the losers reside in one nation and the winners in another. In general, it is highly unlikely that politicians and the general public in exporting nations

⁷ It should be noted that the need to adopt survival tactics differs dramatically among the critical actors. For example, management may perceive itself to be threatened long before there is any danger of bankruptcy. Similarly, shareholders may perceive themselves to be in a "survival" mode long before the nation's economic welfare is threatened. That is, bankruptcy by itself does not reduce economic welfare: it is a redistributive activity which transfers wealth from debtors to creditors. This, of course, assumes that the assets are then sold at a discount to other entities who proceed to operate the mine in an economically rational manner.

will adopt a global welfare perspective; instead, they will invariably see themselves to be the losers. It is for this reason that the price-cutting activities described above can be labelled as a form of destructive competition, and as an activity which should be constrained for the public good.

The analysis also indicates that an over-supply situation, once created, is likely to persist for a considerable period of time. This follows from the fact that if MC is substantially less than AC, then firms are not easily driven out of the market, despite the presence of ongoing accounting losses. Rationalization will only occur when existing capacity has to be replaced or when the market starts to grow.

The above discussion also suggests that, to some extent, decision makers should redirect their attention from price and quantity issues to capacity decisions. Although excess capacity may exist as a result of an unanticipated decline in demand, its presence may also be attributable to a lack of recognition of the ramifications of expansion activities. Hence, cartelization or supply management arrangements should regulate investment decisions. Nevertheless, attention must continue to be given to price and quantity decisions in order to fine tune the system and to ensure that the incentives for producers to join the competitive fringe are not so great as to undermine the long-term viability of the cartel.

In summary, given the strong likelihood that the demand side of the coking coal market, at least in Japan, is characterized by oligopsonistic practices, and that the supply side is prone to destructive competition, a strong a priori case can be made for contemplating the introduction of supply management schemes.

Cartelization: Theoretical Properties

In this section, I shall explore selected characteristics of both the supply and demand markets which are deemed to be important

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factors in determining the potential success of cartelization initiatives. The following analysis relies heavily on the work of Koch.^{8,9}

Limited Number of Sellers

The fewer the number of sellers in a market, the greater the likelihood that each producer will be aware of, and take into account, the implications of its actions on others and on the overall market. Furthermore, the fewer the number of cartel members, the easier it is to reach a consensus on industry policy, and the easier it is to police the resulting agreement. The supply side of the coking coal market is characterized by small numbers in two important areas: the number of producing countries and the number of mines within each major exporting nation. First, in 1984, the three largest exporting nations accounted for approximately 78 percent of the seaborne coking coal export market.¹⁰ In the Japanese market, the top three, Australia, Canada, and the USA, share approximately 90 percent of the market.¹¹

Second, with the exception of the USA, industrial concentration in the coking coal industry is relatively high in all major exporting nations. For example, in Canada, only seven firms export coking coal. In the case of South Africa, most of its sales to Japan are already handled through an industry-owned selling agency, the Trans Vaal Coal Owner's Association.¹² The Australian industry is also highly concentrated. According to a recent study by

⁸ James V. Koch, Industrial Organization and Prices (Englewood Cliffs, N.J.: Prentice-Hall, 1980).

⁹ The interested reader should also see Robert S. Pindyck, "Cartel Pricing and the Structure of the World Bauxite Market", Bell Journal of Economics, vol. 8, no. 2, Autumn 1977, pp. 343-360; and Robert S. Pindyck, "Gains to Producers from the Cartelization of Exhaustible Resources", Review of Economics and Statistics, vol. 60, no. 2, May 1978.

¹⁰ See table 3 for details.

¹¹ Derived from table 2.

¹² For a brief review, see Allan Hill, "Coal Review", unpublished report prepared for Max Pollak and Freemantle, Johannesburg, November 1985, pp. 42-45, 66-69.

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Biekant, in 1983 the four largest firms controlled 54 percent of coal exports; the corresponding figure for the largest eight firms is 72 percent.¹³ It should be noted that these estimates cover both thermal and coking coal. Given the dominant position of BHP/Utah and a few other large firms in the coking coal market, it is reasonable to expect that the concentration ratios for metallurgical coal are even higher than the figures above.

It is also interesting to note that all of the remaining participants (i.e. Poland, USSR, China, and East Germany), are represented by national selling agencies. Thus, the number of decision makers who must cooperate to institute a collective selling arrangement is surprisingly small. However, the group's disparate political and economic orientation suggests that a consensus on appropriate price, output and capacity decisions is not likely to be attained.

Similarity of Cost Structure

Producers are more likely to cooperate in a market sharing arrangement if they face similar production and transportation costs. In this case they will earn equivalent rates of return on their investment, and face similar incentives to cooperate and to preclude free riders. However, it is readily apparent that this is not the real world of the coking coal industry. As discussed in the previous chapter, the f.o.r. and f.o.b.t. costs vary widely between and within countries. For example, the operating costs of open-cut mines are normally less than those experienced by underground operations. Furthermore, from an accounting perspective, old mines without debt servicing obligations are in a radically different situation than that encountered by new, highly debt levered entities. The latter frequently face a rather desperate cash-flow situation which provides a strong incentive for them to opt out of the cartel.

¹³ See Jan Willem Biekant, "Aspects of Corporate Power in World Coal Production and Trade", Raw Materials Report, vol. 4, no. 3, 1986, pp. 20-35.

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Homogeneity of Output

The more similar the product produced, the more likely it is that agreement can be reached on pricing policies, and the easier it is to police any agreement. Multiple products create problems for a selling agency. For example, it can easily be accused of promoting one product at the expense of another, of using one product line as a loss-leader, and of other forms of discriminatory activity.

On the other hand, most nations export only a few brands in significant quantity. Nevertheless, internal conflicts are possible. For example, if the Japanese steel mills were willing to offer a price attractive to soft coking coal producers, but unattractive to hard coking coke operators, what happens? Should the soft coking contract be independent of the hard coking coal agreement?

Elasticity of Supply

One of the most important factors in determining whether or not a cartel will succeed is the nature of the supply curve facing the industry; in particular, the rest-of-the-world (ROW) supply curve. Unfortunately, it is extremely difficult to predict the likely response of competitors to cartelization initiatives. For example, not only is limited information available on firm-specific cost structures, but even less is known about the behavioural aspects of pricing, especially in depressed markets. For instance, will producers outside of the cartel follow tacitly the cartel's leadership with respect to pricing decisions, or will they attempt to expand their market share through aggressive price-cutting policies? Additional uncertainty is introduced by the fact that alternative sources of supply are located in centrally planned economies. In the medium to longer run, both the USSR and China have the potential to supply vast quantities of coking coal, perhaps at prices not much in excess of prevailing levels. However, domestic requirements and the need for substantial infrastructure development makes their response very difficult to predict.

Available information suggests that, on a global basis, the short-run elasticity of supply exceeds unity. This is largely attributable to substantial unused capacity available throughout the

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industry. In the medium term, the associated price elasticity is probably inelastic; it takes approximately 3 to 5 years to add new capacity. In the longer term, say, beyond five years, supply is likely to be quite responsive to higher prices.

Despite the severe reservations expressed above, it is still plausible to argue that some potential exists for cartelization activities. First, the price required to develop new mines, or even to initiate major expansions, is substantially in excess of the prevailing level. Second, if Canada and Australia were to collude, the ROW supply curve would be much less elastic than the global one. This follows, in part, from the fact that a substantial proportion of the available low-cost excess capacity is located in these two nations.¹⁴ Although most of the remainder is held by U.S. producers, most operators would require substantially higher prices to be enticed to increase their production levels materially.

Furthermore, the ability of competitors to add coking coal capacity in the medium to longer run is suspect, except at much higher prices. As previously noted, both the USSR and China are somewhat unknown quantities; however, it is expected that major additions to infrastructure must be made before they could be viewed as "cartel breakers". On the other hand, they have the physical resource base to do so. Poland is similarly constrained by location and probably by security of supply considerations from being a serious competitor in the markets of the Pacific Rim. South Africa is not likely to be a threat, in that its coking coal industry is unlikely to be given permission to export significantly more soft coking coal. This is in sharp contrast to its potential role in the international thermal markets.

In conclusion, it would appear that, outside of Canada and Australia, the only country with the ability to increase coking coal supplies substantially in the short to medium term, and perhaps even the longer term, is the USA. However, for this to take place, the world price must rise substantially above its current level; it is this price spread which is available for exploitation by an industry cartel.

¹⁴ See figure 1 for details.

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Elasticity of Demand

Demand is defined to be elastic or inelastic according to whether the percentage change in quantity demanded exceeds or falls short of the percentage change in price. The demand for coking coal is derived from the demand for steel. Furthermore, since coal costs account for only a small part of the total cost of steel production, it is reasonable to expect the short term price elasticity of demand for coking coal to be inelastic. However, in the medium to longer term, the quantity purchased is expected to be much more responsive to price changes, since substitutes can be developed, technological processes altered, and new steelmaking capacity erected which utilizes less coking coal per unit of output. Indeed, as discussed in chapter 2, such technological change is a real possibility in steelmaking; in fact, dramatic changes may occur even at constant real prices for coking coal over the medium to longer term. Let us now address these observations in more detail.

The standard steelmaking process, the basic oxygen furnace, utilizes coke to provide heat and to support the charge in the furnace. Coke, in turn, is produced from a wide range of coals. Once the steel making process is setup to utilize a particular blend of coals, the steelmaker is somewhat constrained as to the proportion of various types of coal that it can economically utilize. In other words, a substantial change in the composition of the blend requires the expenditure of considerable funds on new equipment and process development. Indeed, it may take one to three years for a steel producer to be able to change its input mix radically. Even in the medium term, say two to five years, the ability of the JSM to do without a significant proportion of their current level of imported coking coal is limited; in other words, rather than curtail their steel production, the Japanese steel producers can be expected to be willing to pay more for their inputs until they have time to adjust their input mix. Indeed, the JSM's reaction to large price increases in the past indicates that they do not alter their purchasing patterns substantially in the short to medium term.

The major response, and perhaps an irreversible one, is likely to be introduced over the longer term, say beyond five years, if real prices are expected to increase significantly in the long term,

an incentive exists for the steel mills to substitute cheaper inputs for hard coking coal. At present, a number of innovative technological processes are being developed which could have a significant impact on the future demand for coking coal. Indeed, even at prevailing real prices for coking coal, activities are taking place which suggest that within five to ten years, steelmakers will reduce their dependence on coking coal. The incentive for doing so is that it facilitates the attainment of the JSM's supply diversification/anti-oligopoly objectives.

Anti-Oligopsony Policies

Overview

In this section I shall assume that:

- the dominant markets for Canadian and Australian coking coal are beset by oligopsonistic power;
- the supply-side market structure is such that potential benefits are available from the adoption of collective selling practices;
- the producing mines are owned by private sector interests;
- all output is exported.

Given these assumptions, which appear to be reasonably realistic in the Canadian and Australian contexts, let us now explore the policies which could be adopted by these nations and their producers to allow them to capture a larger share of the potential gains from trade.

Let us also assume that the government's policy objective with respect to export cartels is to maximize producers' profits. Hence, the conceptual model to be followed is that of the monopolist: firms should produce up to the point at which $MR = MC_i$, where MR and MC_i represent marginal revenue and marginal cost of the i th mine, respectively. This straightforward condition for profit maximization is, in practice, difficult to attain. Aside from the heavy demands it places on market knowledge, it dictates that all producers in the collective selling scheme produce up to the point at which their MC equal everyone else's MC . This suggests

that, if underlying cost structures vary substantially across firms, some firms may be forced to cease operations; some will operate at much lower levels of capacity utilization than others; and some will sustain losses while others earn substantial profits.

It is highly unlikely that all producers will agree to abide by the rules forthcoming from the unconstrained profit maximizing model. Indeed, as discussed previously, the pressures of survival and the desire to increase profitability will encourage some producers to resist cartelization initiatives strongly. Although it is conceptually possible to construct tax and subsidy schemes to allow the winners to compensate the losers, it is very difficult to do so in practice.¹⁵ This suggests that policy makers must implement more equitable, but less efficient, policies if prospective arrangements are to stand the test of time. Therefore, in order to generate widespread support among producers, policy makers invariably propose schemes which lead to a smaller amount of total surplus being captured by the producers, but provide sufficient benefits for all so that everyone is willing to participate in the supply management scheme.

In the following discussion, I shall restrict the discussion to pragmatic schemes: those that have some chance of acceptance in the context of the prevailing Australian and Canadian economic and political environment. Before doing so, it is useful to note that the *raison d'être* of most supply management schemes is to capture incremental benefits from trade. Although this may be achieved, in the first instance, through the appropriation of incremental profits, it must be recognized that governments frequently pursue goals that are unrelated to efficiency. For instance, they may wish to use supply management schemes to pursue conflicting goals with respect to employment, regional prosperity, trade

15 The welfare economics literature contains numerous articles on the problems of designing "efficient" compensation schemes. On a more pragmatic note, the on-going discussion of neutral rent taxes reveals the difficulty of designing a tax system which does not carry with it distortionary effects. Discussion of the latter issue can be found in Richard Dowell, "Resources Rent Taxation", *Australian Journal of Management*, vol. 3, no. 2, 1978, pp. 127-146; and Richard Dowell, "Profits Based Royalties and Productive Efficiency" *Resources and Energy*, February 1980. A more general discussion can be found in R. Garnaut and A. Clunies Ross, *Taxation of Mineral Rent* (Oxford: Oxford University Press, 1983).

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relations, and the distribution of economic rents. Hence, supply management schemes should be judged not only on their ability to capture additional profits for producers but also for their ability to achieve other socially desirable objectives. Nevertheless, in the Australian and Canadian policy environments, profits would appear to be a reasonable proxy for economic welfare; therefore, the following discussion will, by and large, utilize profitability as the suitable criterion for evaluating the merits of various cartelization models.

Options

In order to constrain the analysis to manageable proportions, I shall restrict my review to representative models which are judged to have some degree of political and economic acceptability in either Canada or Australia. Furthermore, the merits of each scheme will only be alluded to in the broadest of terms. To go further would take us into the complex world of cartelization theory and policy, which would be a separate study in itself.

Government Cartels

Probably the best known example of a government cartel is a national marketing board model.¹⁶ A common version of this scheme calls for the state to buy the product at an administratively determined price, and then sell it in the export market at the cartel price. In setting the administered price, the government may try to call forth exactly that quantity of output necessary to meet the nation's quota, or it may utilize a stockpile program in order to ensure that its export quota is not violated. Alternatively, the government may issue quotas to individual producers and set its buying price so as to ensure that the appropriate level of production is forthcoming. Another option is for the state marketing board to take the output, determined in the same fashion as above, on consign-

¹⁶ For details, see Andrew Schmitz, et al., Grain Export Cartels (Cambridge, Massachusetts: Ballinger, 1981).

ment. Interim payments may be paid to producers, with the final payment based on the disposition price.

For expositional reasons, I shall assume that the relevant national marketing scheme is based on the issuing of quotas to all producers and that all proceeds, less administrative costs, are ultimately distributed to the producers. This version of a national marketing board model has a number of advantages over its competitors. First, it rests on a strong legal foundation. Second, it facilitates the use of government-to-government negotiations which are an integral part of virtually all broadly-based international cartel arrangement. Third, the national marketing board model facilitates the use of a wide range of cartelization arrangements, ranging from formal to informal agreements. Fourth, the power of the state can be employed to force all producers to join; in other words, the free-rider problem can be readily addressed, if there is a political will to do so. Fifth, the board can be used to promulgate discriminatory policies with respect to the allocation of production quotas. For example, it can be used to favour one region over another, underground mines over open-cut mines, high-cost over low-cost mines, and domestic over foreign-owned firms.¹⁷

It is almost inevitable that, in a discussion of mineral policy, the question of economic rents will raise its head.¹⁸ If the Japanese steel mills operate in the fashion suggested by their critics, then economic rents, if any exist, are probably captured by the consumers of coking coal. This suggests that it may be expedient to use the marketing board to levy a pseudo export tax which would let the government, rather than the producers, capture the incremental rents generated by the anti-oligopsony policies. The difference between the export and domestic price is

17 Although the use of the national marketing board model to achieve nonprofit or nonproducer related goals is bound to be unpopular with producers, it is still a legitimate approach for governments to adopt if the situation so dictates.

18 Economic rent is herein defined as "a gift of nature whose exploitation yields a return beyond the necessary factor payments to the labour and capital required for its discovery and extraction". Source: Meyer W. Bucovetsky and Malcolm Gillis, "The Design of Mineral Tax Policy", in Malcolm Gillis, et al., editors, *Taxation and Mining: Non-Fuel Minerals in Bolivia and Other Countries* (Cambridge, Massachusetts: Ballinger, 1978), p. 97.

merely a disguised export levy. There may be times when such indirect imposts have strong political appeal. However, this approach is bound to be highly unpopular with producers and sub-national governments within the exporting nation. This follows from the fact that such levies can be expected to lead to lower profits for producers and reduced tax payments for competing levels of government.

Nonetheless, the national marketing board model has its limitations. It is reasonable to ask, as Smith has done,¹⁹ whether a publicly-owned body is apt to possess the commercial expertise to enable it to bargain effectively and to determine the parameters which lead to welfare maximization. Although this question cannot be answered with precision, it is reasonable to speculate that, if the appropriate objective is to maximize joint-industry profits, then bureaucrats are unlikely to be the best people to oversee the operation. If, on the other hand, society's objective function contains a number of nonprofit goals, then the public servants may be better decision makers than their private sector counterparts. In summary, it depends to some degree on whose preference are to count, and on the extent to which the domestic economy's long-term interest are best pursued through the market mechanism as opposed to interventionist policies. Although current thinking in Canada and Australia seems to favour the former, it may change again in the foreseeable future.

Perhaps the most important factor precluding the adoption of the national marketing concept in Canada and Australia is opposition to the state's involvement in commercial activity, at least to the extent inherent in this proposal. While these views are not universally espoused in either nation, the majority of the populace appears to favour private-sector dominance of the commercial sector.

Another important constraint reducing the pragmatic appeal of the national marketing board option is the role of federal/state relations in both Canada and Australia. As discussed in chapter 4, these countries are somewhat unique in assigning mineral ownership rights to subnational units. Hence, a conflict is almost

¹⁹ Ben Smith, "Bilateral Monopoly and Export Price Bargaining in the Resource Goods Trade", *Economic Record*, March 1977, pp. 30-50.

certain to develop if the federal government attempts to institute a national marketing board scheme. Indeed, the imposition of such a policy in the face of strong political support for the subnational unit's position could carry a high political cost for the federal government. On the other hand, an attempt by a subnational unit to undertake a state marketing scheme is virtually doomed to failure. For example, if NSW tried to set up a marketing authority without the support of Queensland, the buyers would quickly shift their attention to the latter domain and other competitive sources of supply.

Finally, it should be noted that one of the crucial factors which must be addressed in any supply management scheme is capacity; this is not unique to governmental schemes, but will nevertheless be discussed at this time. Technically, as long as price and quantity produced are controlled, the cartel can maximize its members' joint-profits, for any level of capacity. However, if the nation's welfare is to be optimized over the long run, it should seek to use its capital assets efficiently, by operating each mine at its design capacity.

The regulation of capacity is difficult; indeed, the problem is complex and almost defies solution. For example, the political environment necessary to generate support for cartelization is not likely to exist until after the onset of depressed economic conditions. Such a crisis is almost invariably associated with the presence of over-capacity. Hence, the starting point of most supply management schemes is one of over-capacity, and the controlling agency must employ production quotas in order to maximize joint-industry profits. Unfortunately, this very process creates problems, since the producers all perceive themselves as special cases, and definitional questions frequently arise. Second, after the scheme is introduced and prices start to rise, the controlling agency is likely to be faced with the problem of blocking entry to the industry. It is quite conceivable that the price could rise to a level consistent with new investment in low-cost mines. However, allowing this capacity to come on the market would likely reduce joint industry profitability.²⁰ This is not a problem in centrally

²⁰ For a discussion of this issue, see David L. Anderson, "The Saskatchewan Potash Industry: Alternative Strategies for Future Development", Discussion Paper No. 264 (Ottawa: Economic Council of Canada, 1984); and David L.

planned economies or for a monopolist in a market economy, since the power readily exists to ensure that a destabilizing project can be blocked. However, in nations respecting private property rights, the situation is more complex. It is politically difficult to argue against the financial wisdom of a new mine when its proponents are willing to put up the requisite funds. Pro-private sector governments have difficulty explaining that the market sometimes fails to reflect the best interest of society, without appearing to contradict themselves.

It is critical that the issue of capacity be addressed early and on an ongoing basis, not after a massive glut has spread throughout the market. By this time, cartelization has automatically become a suboptimal policy, although it may still be preferable to the "do-nothing" option.

Private Cartels

If profit maximization is an acceptable proxy for welfare maximization, it follows that a privately controlled collective is likely to yield superior results to that of government controlled body. For instance, industry officials are probably better equipped to understand the demand side of the market and to judge the probable reactions of their competitors to a host of possible price and output scenarios. A privately controlled cartel is also more likely to obtain agreement on critical issues, since all participants speak the same language and presumably trust each other's judgements.

Given today's political environment, especially the current stress on deregulation, the privately controlled model has obvious political appeal. In addition, it is not an alien concept in the mineral sector, including the coking coal industry. For example, a group of soft-coking coal producers in the Hunter Valley in Australia, known as the Newcastle Seven, operate a loose version of a selling collective. All the members are privately owned.²¹ Similarly, most South African soft coking coal is sold through the

Anderson, "Inter-provincial Competition and the Canadian Potash Industry", *CIM Bulletin*, vol. 76, no. 880, August 1985, pp. 33-38.

²¹ See chapter 7 for details.

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privately owned collective, the Trans Vaal Coal Owners' Association.²² Finally, although Canadian coal producers have not utilized the concept, other Canadian mineral industries have done so with apparent success. The major examples are the potash and sulphur industries, selling through the Canadian Potash Exporters' Association (Canpotex) and the Canadian Sulphur Exporters' Association (Cansulex), respectively.

Despite advantages over the government controlled option, problems exist. First, private cartels face the same problems as competing models in obtaining agreement among producers with respect to mutually acceptable price, output and capacity objectives. For example, how does one reconcile such issues as the inherently different interests of the high-cost and the low-cost producers, or of the new producer with high cash flow requirements in contrast to the traditional producer with minimal, if any, debt repayment obligations?

Perhaps the major problem facing privately owned export consortia is the free rider: the producer who does not wish to join the consortium. It is highly unlikely, given the structure of the Australian and Canadian coking coal industries, that an effective, industry controlled, collective selling agency will ever emerge unless virtually all producers are members of the consortium. Unfortunately, the preferred option for any individual producer is to stay outside of the cartel: it will let the others do the bargaining, then slightly undercut them and sell as much as it can economically produce, rather than be governed by the cartel's quota system. Consequently, either the cartel forgoes industry-wide profits and matches the free rider's price, or some cartel members will opt out of the group and operate as part of a competitive fringe. The latter will inevitably lead to the collapse of the export consortia, and the industry will return to its pre-cartel situation. Indeed, it may even be worse off than it was initially.

Rectification of this problem appears to require the use of the state's coercive powers. The available options for precluding the presence of free-riders includes tying project approval to cartel membership, to differential tax regimes for members and non-members, and to the use of export licensing schemes. Other forms

22 See Alan Hill, "Coal Review", pp. 42-45; 66-69.

of moral suasion are undoubtedly available. However, these approaches can be utilized only if there is widespread evidence that exporters are currently disadvantaged by selling independently, and if the vast majority of producers are convinced that the export consortia model is the preferred option.

Privately controlled cartels also suffer from potential legal problems. Since they restrain trade in order to increase prices at the disadvantage of consumers, they may run afoul of a host of anti-monopoly laws. However, many exporting nations are refining their legislation to facilitate collective responses. The underlying rationale is as follows: first, the relevant decision-making domain is deemed to be the nation state and, hence, if foreign consumers are injured, it doesn't matter; and second, the demand side of the market is perceived to be riddled by imperfections which can be redressed only by employing countervailing policies. In practice, Canadian and Australian laws have not precluded the use of export consortia. However, U.S. anti-trust legislation has had an extraterritorial impact on both of these nations. Despite the exemptions provided by the Webb-Pomerene Act, it is sometimes alleged that U.S. controlled firms fiercely resist the concept of collective action for fear of anti-trust action. In this case, government mandated membership may be the only method of precluding the free-rider problem.

The final problem is clearly hypothetical in today's climate: excess profits or monopoly rents. However, if export cartels operate successfully, they may generate increased profitability for their members. If they are very successful, they may even generate economic rents. This outcome could lead to public pressure for a fair share of resource rents. Therefore, in order to ensure long-run support for the export consortia concept, a rent collection device should be an integral part of any publicly sanctioned supply management scheme.

In summary, the privately owned cartel option has a number of political and economic advantages over a government controlled scheme. Nevertheless, it would appear to require government support in order to preclude the presence of free riders - the death knell of voluntary arrangements.

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Export Duties

Although the theory behind optimal export taxation is rather complex,²³ the overall rationale is straightforward. A unit or ad valorem levy should be applied to each unit of export so as to extract the maximum possible rent. The extent of the charge is critically dependent upon the underlying elasticities of supply and demand for the product. However, problems abound; the most basic is that the tax planners lack the empirical information required to specify the tax rate. This point is clearly made by Dyack.²⁴ Although she suggests that a tax and subsidy scheme is a useful mechanism for extracting maximum benefits from the Canadian coal industry, assuming it faces oligopsonistic buyers, she acknowledges that the government lacks the necessary empirical evidence to operationalize the concept properly.

Traditionally, unit and ad valorem taxes have been classified as suboptimal policies for purposes of extracting resource rents, since they are clearly nonneutral in a competitive environment. That is, if the economic system without this levy leads to optimal efficiency, then the introduction of such a tax will lead to a reduction in economic welfare. However, if the no-tax world is characterized by oligopsony, then the introduction of a nonneutral export levy, if properly designed, could yield positive global welfare effects. The real world application of such levies is seldom predicated on global considerations; instead, they are based on country-specific analysis. In this case, the introduction of a non-neutral tax in an oligopsonistic market may improve the fortunes of the producing nation, even if it further reduces global welfare. In other words, export taxes can be used to redistribute surplus from consumers to producers. They are thus potentially important instruments in any anti-oligopsony strategy.

Most of the debate surrounding resource-sector rent extraction has focused on the issue of neutrality. For this reason,

²³ For details, see James Brander and Slobadan Djajic, "Rent-extracting Tariffs and the Management of Exhaustible Resources", Canadian Journal of Economics, vol. XVI, no. 2, 1983.

²⁴ Brenda J. Dyack, "Western Canada's Coal Industry: Status and Potential", Discussion Paper no. 278 (Ottawa: Economic Council of Canada, 1985).

rate of return or so-called "neutral rent" taxes have frequently been promulgated.²⁵ Such levies allow marginal operations to remain in operation. If an export levy were to be introduced, it would have the effect of increasing the firm's cost structure; hence, the marginal firm would fail to return a "normal" profit to its investors. Even more damaging, according to conventional wisdom, is that infra-marginal operations would be lost to society. That is, some mines which would otherwise yield rents, albeit small quantities, would earn less than normal profits after tax. Therefore, an export levy may preclude the construction of new mines which would otherwise be built. Once again, society loses.

The quandary facing governments is as follows. If the market is dominated by buyers exercising market power, rents may flow from the producer to the consumer. If this occurs, one or more of corporate profits, taxes, and wages can be expected to be lower than they would otherwise be. Thus, reliance on traditional profit-based taxes will be a futile exercise: one can only capture a portion of what exists. Traditional rent levies address the redistribution of the rents captured by producers; they do not capture rents appropriated by consumers.

The major attribute of an export levy is that it focuses directly on this problem: the price paid by the consumer. By adding to the producers' costs, it shifts up the supply curve; this leads to a higher selling price, lower output, and increased government revenue. If the elasticity of demand for the taxed item is price inelastic, an export levy should capture some part of the surplus previously appropriated by the consumer. Furthermore, if the levy does not increase the selling price beyond that required to stimulate the construction of new mines in other domains, it should be a relatively successful scheme. Nevertheless, an export levy may encourage steelmakers to increase their efforts to find new ways to reduce their dependency on coking coals.

²⁵ For review of this debate, see Ben Smith, ed., Taxation of the Mining Industry (Canberra: Centre for Resource and Environmental Studies, Australian National University, 1979); Nancy Olewiler and Peter Richardson, eds., Rate of Return Taxation of Minerals, Proceedings No. 1 (Kingston: Centre for Resource Studies, Queen's University, 1978); and R. Garnaut and A. Clunies Ross, Taxation of Mineral Rent.

From a policy perspective, a major problem with an export levy is its distributional impact. Even if substantial rents are captured from the buyer, it is the government which appropriates the proceeds. Although the nation may be collectively better off, the producers stand to lose. This follows from the fact that part of the tax is paid by the producer. The extent to which the burden is shared between consumers and producers is determined by the relevant price elasticities of supply and demand. Even if both curves are relatively inelastic, the producer will still be worse off. Consequently, even if an optimal export levy could be designed, the government should nevertheless expect a massive lobbying effort by the business community to forestall its implementation. However, the government could address legitimate concerns, without eradicating its tax policy, by initiating ameliorative action through other policy instruments.

Furthermore, if the export levy is introduced by the central government, the subnational units can also be expected to object: if corporate after-tax profits decline, their tax revenues will also decline. In addition, if the level of both present and future economic activity is expected to decline below the "no-export" levy level, then subnational units will undoubtedly protest vociferously.

Other problems of a more technical or bureaucratic nature may reduce the real-world appeal of export levies. For example, changing economic conditions within the coal industry and the global economy may necessitate frequent changes to the tax rate. These would be difficult to achieve, for both technical and political reasons. It would open up old debates, and provide a continuous forum for embarrassment of the government in power. Most voters would undoubtedly have some difficulty in understanding why the government "couldn't get it right the first time" - the public is unlikely to reach the level of economic sophistication required to appreciate the relationship between tax rates, prices and rents in an oligopsonistic environment. Furthermore, the reduction in direct and indirect employment associated with the production cut-backs inherent in cartelization policy are much more visible than the jobs created by the recycling of rents captured by the same policy. Thus, we conclude that export levies have theoretical appeal in a market characterized by oligopsony, but severe distributional, political and empirical limitations.

Export Control and Contract Approval Systems

Export controls have been widely employed as an integral element of many international supply management schemes. In addition, as we shall see in the following chapter, they can serve as an independent, autonomous, control device. The purpose of export controls is to use the state's constitutional powers over exports to ensure that certain specified conditions have been attained before permission to export is granted. In some cartel arrangements, export licences have been employed to enforce the quota system. Each producer is given export licences covering that quantity which corresponds to its cartel quota. The export permit system can serve as a useful component of a comprehensive supply management scheme, since it can help control shipments, enforce quotas, and preclude the operation of free riders. Nevertheless, planners must still solve many of the tough questions discussed above.

An export permit system may be utilized in other innovative ways. For instance, it may be utilized as a critical component of a bargaining mechanism: the controlling agency may specify a host of conditions which must be satisfied, including price and tonnage parameters, before the licence will be granted. Furthermore, the mechanism can be used to implement informal national and international marketing coordination. This can be achieved by simply refusing to approve sales until some critical deal has been consummated, or by setting the decision parameters and negotiating schedule to correspond with those of other nations - in other words, by instituting an informal international cartel arrangement. Indeed, one of the major advantages of an export control device is that it can achieve, in a rather discreet fashion, virtually all plausible supply management objectives without generating the ill-will frequently fomented by explicit, oligopolistic arrangements.

The permit system has other advantages. It is an extremely flexible device. For example, it is possible to change the effective weights attached to each implicit or explicit criterion as often and as dramatically as events dictate. The need for consistency and explanation is, technically, minimal. This flexibility is an important

feature of any control device, since it must be able to adapt to a constantly changing commercial environment. In addition, the use of a multiple criteria system facilitates the attainment of non-commercial goals. Thus the complex trade-offs inherent in political life can be enacted without providing the government's critics, both domestically and internationally, the opportunity for reopening old debates. In other words, in market economies where governments tend to be under pressure to simultaneously pursue non-market objectives and to reduce the scope of government activities, the use of an export permit system provides a low-cost political option for redressing the oligopsonistic practices of selected consumers.

Nevertheless, the export permit system has its limitations. First, the problems of setting appropriate parameters remains; in this respect, the limitations discussed under "government cartels" also apply. Second, from the producers' perspective, sole reliance on an export permit system may be less desirable than a marketing authority, since the decision-making process which underlies the export permit system tends to be highly secretive, *ad hoc*, and subjective. This is attributable, in large part, to the ability of the regulators to operate through the use of orders-in-council, which do not require a public accounting. This, in turn, may lead to charges of political posturing and favouritism in the contract approval process.

In summary, an export permit system is a useful instrument for aiding and abetting both public and private cartel arrangements. In the former case, they allow the government to employ a host of nonprofit decision criteria, and to regulate the industry in a rather unobtrusive but yet flexible fashion. In the latter case, the export permit system can be used to preclude the free-rider problem: for example, contracts arranged by the cartel may receive automatic approval, while those signed outside the cartel may either be denied approval or, more likely, be subjected to a rather time consuming contract-by-contract review process. It is difficult to imagine Canada or Australia instituting a supply management scheme which did not depend, to some degree, on the governments' export permit system. On the other hand, the basic questions which were addressed under the rubric of public and private cartels still apply: the export permit system is primarily an administrative device designed to carry out supply management

policies. It is the specification of these policies which represents the most difficult task facing the proponents of cartelization.

Summary

The specification of an appropriate supply management scheme depends critically on the government's objectives (especially its nonprofit goals), the nature of the demand side imperfections, and the magnitude of the benefits potentially available from cartelization. For instance, if efficiency objectives are dominant, then the supply management scheme should pursue joint-industry profit maximization; this will, in turn, maximize incremental domestic welfare. On the other hand, if regional disparity issues are important, then the scheme might be constructed in such a fashion as to grant quota allocations, not only on the basis of each mine's initial capacity and marginal costs, but also on the basis of other criteria such as employment and spin-off effects. However, given the need to reach an international consensus, it is probably expedient for emphasis to be placed on profitability criteria, and to utilize other domestic instruments to redress equity related issues. If this is deemed to be an acceptable course of action, then the privately owned cartel systems should have strong appeal to Canadian and Australia decision makers. It builds on strengths, yet attacks weaknesses; it respects private property rights; it effectively utilizes the market system's strong efficiency bias; and it harnesses the bargaining power inherent in collective action.

The second issue raised above, the nature of demand-side imperfections, is often overlooked. If the problems are localized (that is, if only one market is thought to be highly influenced by oligopsonistic practices), then appropriate policies must be devised. More explicitly, the control mechanism must be designed to utilize the bargaining power inherent in collective action in confronting oligopsonistic buyers. On the other hand, it should also be flexible enough to allow for independent marketing in those locations where such practices will yield superior outcomes. Unfortunately, international markets are linked, although the presence of high transportation costs does reduce the sensitivity of prices in one coking coal markets to those in another. The

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planners must design a scheme which provides for collective action in, say, Japan, but allows firms to compete aggressively in spot markets in Europe and in the LDCs. At the risk of repetition, collective action is required to fight the market power possessed by oligopsonistic buyers, and flexibility is required to allow suppliers to pursue new markets so as to reduce their degree of dependence on the Japanese markets. Unfortunately, finding a policy which will simultaneously achieve each objective has proven to be extremely difficult.

The potential benefits available from a supply management scheme must be estimated before substantial effort is devoted to the task of designing a collective selling vehicle. In other words, the mere presence of oligopsonistic behaviour by sellers is not an adequate reason for calling for a departure from the status quo. The very attempt to impose collective selling practices upon this fiercely independent industry may generate substantial political and economic costs. Focusing on the economic costs, for example, it is not clear that a government cartel will necessarily perform better than independent firms when judged on the basis of practice versus practice, rather than theory versus practice. Furthermore, the inability to build a new mine when a developer is willing to do so may generate political costs which the nation's politicians are unwilling to incur, despite widespread evidence that such practices could lead to substantial welfare losses for existing producers and for the nation.

Other problems exist. The mere attempt to invoke a supply management scheme may encourage consumers to adopt retaliatory measures which ultimately lead to a worsening of economic conditions for cartel members. For example, a strong cartelization move could induce coking coal users to seek out new sources of supply. More likely, it would encourage them to accelerate the rate at which they introduce technologies to reduce consumption of hard coking coal. Furthermore, cartel members must also evaluate carefully the possible responses by members of the competitive fringe. This was previously discussed under the rubric of "supply elasticities": if a number of low-cost large-scale mines either exist or are available for development in close proximity to markets, the potential benefits from cartelization are severely reduced, perhaps even nonexistent.

Conclusion

This chapter should not be construed as an attempt to dissuade suppliers from contemplating collective selling practices. Instead, it attempts to stress that a host of factors are at play and any one of them could operate in such a fashion as to negate the advantages of cartelization. In my opinion, there are potential benefits to be gained from introducing anti-oligopsonistic policies, but they are not apt to be nearly as large as a casual examination of the current environment would suggest. For example, despite the apparent existence of strong oligopsonistic forces on the demand side of the market, the long-term secular decline of the steel industry and the expectation that steelmakers will introduce additional coking-coal-saving technologies over the medium term dramatically erode the expected benefits from cartelization. If one could assume the existence of fixed technologies in the steelmaking process and the continuation of historical long-term growth rates in the demand for steel, cartelization policies should be zealously pursued. However, since these assumptions are unrealistic, the problems facing coking coal suppliers are not likely to be totally redressed through the imposition of collective selling practices.

Nevertheless, schemes which focus attention on issues such as world-wide capacity requirements, the reliability of demand forecasts, negotiating tactics, and basic information sharing should yield modest gains for producers. Indeed, the major advantage of such efforts may be to discourage buyers from attempting to extract a greater share of the potential gains from trade. The very fact that market-oriented producers are willing to discuss collective action should be a clear signal to buyers that, if they are not careful, they may force the sellers to adopt oligopolistic policies.

Let us now explore the Australian and Canadian experiences in coping with the Japanese coking coal procurement policy. This will entail a discussion of the relevant debate and, especially in the Australian case, a review of several policies which have been enacted, in part, as anti-oligopsony measures.

6. Australian Policy Responses: the Export Permit System

Introduction

The purpose of this chapter is to describe and analyze the Australian Export Permit System, the primary instrument employed by Australia in its attempt to counteract the adverse effects of the Japanese coordinated procurement system for coking coal.¹ More specifically, according to a former Minister of Trade, the export permit system can be characterized as having the following objectives:

the controls have the key purpose of ensuring that Australian producers receive fair and reasonable prices within market trends for their exports. In this regard, they provide a counter to collusive buying practice, they limit unnecessary social and commercial disruption resulting from cut-throat competition between different Australian suppliers in a situation of market oversupply, and they provide protection against unfair transfer pricing practices in vertically integrated industries.²

The export permit system is based on the commonwealth (federal) government's powers over overseas trade and commerce and, more specifically, the Customs Act 1901 and the Customs (Prohibited Exports) Regulations (Section 9).³ Under the provision of Section 112 of the Customs Act 1901, the "Governor-General

1 It must be stressed that this study describes and assesses the export permit system in existence as at June 1986. On 17 September 1986, revisions were made to the scheme; see footnote #33 for details.

2 Lionel Bowen, "Role of Government in the Minerals Trade", Mining Review, August 1984, p. 7.

3 For a review of the legal basis of the export permit system, see R.P. Macdonald, "Export Approvals", unpublished paper presented to a seminar arranged by the Australian Mining and Petroleum Law Association (NSW Branch), 26 March 1982.

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may, by regulation, prohibit the exportation of goods from Australia ... by prohibiting the exportation of goods unless specified conditions or restrictions are complied with".

The powers to regulate the export of various mineral commodities were first used in 1938 to control the export of iron ore. In fact, they have been employed continuously since that time, albeit with varying degrees of zealousness.

The period most applicable to this study commenced in 1973 with the election of the first post-war Australian Labor Party (ALP) government, and the appointment of R.F.X. Connor as the Minister for Minerals and Energy. An ardent nationalist with a long-time association with the coal industry, Connor firmly believed that Australia was not receiving an acceptable return on its nonrenewable resources, particularly uranium and coal. He believed that much of the problem in coal was attributable to Japan's ability to play one Australian producer off against another. In other words, the problem lay in the nature of the bargaining process - coordinated buyers versus disorganized sellers.⁴ Connor's response was to rely heavily upon the export permit system as his major weapon. He placed all raw and semiprocessed minerals on the prohibited list;⁵ hence, the shipment of all such products, including coal, required ministerial approval. He even went so far as to order producers to return to the bargaining table and to enter the bargaining process himself.

The Connor period was marked by chaos. For instance, the *ad hoc* contract by contract review process severely upset the Japanese. They were troubled by Australia's use of resource diplomacy and suspected that Connor was attempting to encourage coordinated selling practices, a strange source of concern, given Japan's use of similar tactics. In late 1975, the Whitlam government fell to the combined forces of the Liberal/National

⁴ A brief history of the EPS is presented in *ibid.* and Susan Bambrick, "Australian Mineral Commodity Marketing", *Resources Policy*, June 1980, pp. 166-169.

⁵ *Ibid.*, p. 167; and Hon. R.F.X. Connor, "Speech", address to the Australian Mining Industry Council, Canberra, 25 March 1974.

⁶ Hon. R.F.X. Connor, Minister for Minerals and Energy, "Press Statement", 31 January 1973.

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Country parties, under the leadership of Malcolm Fraser. Once again, a powerful politician was placed in charge of the resources portfolio: the Hon. Doug Anthony, the Deputy Prime Minister and leader of the National Country Party. He quickly indicated basic support for the export permit system:

we could not accept a situation in which resources were developed and exported in a way that disrupted world trade, or were sold at prices which distorted the international market. As a Government we would be held accountable. And certainly we could not, and will not, stand aside and allow Australian producers to be forced into selling their products at less than fair and reasonable market prices. This can happen when individual producers are dealing with groups or cartels, and in some cases groups strongly backed by governments, and the market mechanism does not operate.⁷

Notwithstanding its strong commitment to the general principles of export controls, the new government was market oriented and committed to deregulation. Thus, by late 1978, the Fraser government dropped most minerals from the prohibited list. Interestingly, coal was not among the items deleted, nor was iron ore, bauxite, and uranium.⁸ The government's rationale for retaining these commodities can be readily found by reviewing the selection criteria:

Export controls are used where necessary to ensure the achievement of fair and reasonable market prices and other conditions of sale. Factors taken into account in this regard are:

- dependence on one market by a particular industry;

⁷ Hon. J.D. Anthony, "The Government's Foreign Investment and Minerals Export Pricing Policies", Speech to a meeting arranged by the Liberal Forum, Wentworth Hotel, Sydney, 30 June 1976, p. 1.

⁸ Hon. J.D. Anthony, "Reduction of Export Controls on Minerals", Press Release 78/148, 15 December 1978.

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- buying practices or significant coordination among buyers in a particular market;
- existence of inter-company transfers and/or transactions between related companies at different stage of the production process;
- extent of foreign ownership in a particular producing industry;
- effect of overseas trade practices and anti-trust legislation on the industry;
- Australia's market position (major or minor supplier);
- importance of the mineral as an export earner;
- effect on competitiveness of Australian producers relative to overseas producers.⁹

Over the 1976-78 period, automatic approval was given to virtually all coal contracts. In 1978, however, the coking coal market weakened, and the prices received by Australian producers from the JSM became an important political issue. Anthony responded by, once again, refining the export permit system.¹⁰ This version of the system still applies today, and hence deserves detailed study.

In order to provide a detailed assessment of the export permit system, I shall proceed in several steps. First, organizational and administrative aspects of the scheme are presented. This is followed by a presentation of advantages and disadvantages. The paper then addresses the specific concerns of the producers, with emphasis placed on those aspects of the system giving rise to intra-industry conflict. Potential changes to the scheme are contained in the following section; this is followed by concluding comments and a summary of the findings.

⁹ R.P. Maxwell, "Export Approvals", pp. 11-12.

¹⁰ See Hon. J.D. Anthony, "Future Export Policy - Bulk Raw Materials", Statement to the House of Representatives on 24 October 1978.

Operating Characteristics

The export permit system, as it applies to both thermal and coking coal, is highlighted by a pre-negotiating approval system.¹¹ Each exporter is required to approach the Department of Trade and obtain basic negotiating parameters, of which the most important is normally the minimum acceptable selling price. It must be stressed that this step is supposed to occur prior to the initiation of contract discussions. However, it has proven rather difficult to define when serious discussions have begun and when a producer is merely holding friendly talks to see if it is worthwhile approaching the Department of Trade (DOT) on the matter. Since the approval process is contract specific, DOT must be informed of the price and quantity under consideration, the buyer, and the general terms of the sale; this is difficult to do unless some degree of prior consultation has taken place. During negotiations, the seller may approach the department again for further instructions. Finally, the seller must submit the negotiated contract for scrutiny. However, the system provides automatic approval if the transaction takes place within the parameters specified by DOT.

In setting the negotiating parameters, the department is to attempt to obtain the best price consistent with Australia's national interest. It is clear that in practice this has meant a delicate balancing between sales, employment, and rent-capturing objectives. Indeed, it appears as if, at least in the past few years, the government has placed greater weight on sales and employment than on the rent-capturing objective.

The Department of Trade receives market intelligence from many sources:¹² meetings with potential exporters, consultation with the Australian Coal Association, reports submitted by trade representatives attached to Australian embassies and consulates in the major market countries, and normal departmental research activities. The activities of the Australian Coal Association (ACA) requires elaboration. In its role as the industry's trade association,

¹¹ For a good discussion of administrative procedures, see R.P. Maxwell, "Export Approvals"; and J.M. Wilcox, "Transcript", Curragh Coal Sales Company Pty Ltd. v. Wilcox, Federal Court of Australia, Brisbane, 28, 29 June 1984.

¹² See J.M. Wilcox, "Transcript of Proceedings".

the ACA has taken a keen interest in the operation of the export permit system. On 14 April 1983, its input into the parameter determination system became official: the ACA formed a series of working groups, one for each of nine major coal markets, for the express purpose of providing advice to the Minister of Trade on the parameters specification process. In May 1984, the ACA altered this structure. It now operates two committees only: one for thermal coal and another for coking coal. Although the formal purpose remains the same, the level of analysis has changed. Each committee now focuses on broad trends and emerging issues, rather than attempting to help specify specific parameters.

Throughout the 1978-82 period, the export permit system operated in a rather lax fashion.¹³ Markets were good, resulting in prices acceptable to most participants, and the Minister employed moral suasion if he felt that specific transactions were potentially destabilizing and thus might injure other Australian producers and the broader economy. In 1982, market conditions deteriorated and public pressure once again focused on the ability of Australia's fragmented producers to achieve acceptable prices. During the election of March 1983, the ALP stressed the need for tougher export controls; the union movement was particularly vociferous in this regard. Furthermore, press reports frequently contained references to misleading Japanese government demand forecasts and the deliberate creation of oversupply by the Japanese steel mills. Shortly after the ALP victory, the issue became even more politicized.

The furor was created by allegations that some Australian producers had agreed to settle with the Japanese steel mills outside of the parameters approved by the government. Not surprisingly, most of the remaining Australian producers quickly sought government approval to sign for this new world price. From this date, April 1983, the Department of Trade appears to have become more zealous in setting parameters; it started to move from an approach of passively following the market to one of attempting to lead it.¹⁴ A similar but more serious challenge to the system

¹³ Based on personal interviews conducted by the author with senior government and industry officials in March 1985.

¹⁴ *Ibid.*

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occurred in the 1984 price negotiations when Utah and BHP settled early for what was said to be an unnecessarily low price.¹⁵ Immediately thereafter, the Canadians signed en masse, apparently deeming their informal bargaining agreement with Australians producers to be terminated. Once again, the remaining Australian producers sought government approval to sign for the Utah/BHP price. The Minister of Trade expressed the government's view when he stated:

the Federal Government is responsible to the nation for being able to guarantee that coal producers think of the national interest rather than their personal interests. ...

I don't think BHP is entitled to put its own interests above the national interests and I'm not going to let them do it.¹⁶

Even the financial press felt that Utah/BHP had, to some extent, sold out the nation, and widespread support appeared to exist for a tightening up of the export permit system. In fact, the Miners' Federation even went so far as to threaten strike action to force producers to negotiate better deals.¹⁷ The government, as in the case the year before, was virtually helpless; in soft markets, it could not very well refuse to approve the contract and risk upsetting the Japanese who might shift sales elsewhere. Although fear of such a response is probably vastly overstated, it does hamstring the government, which must be prepared for a major internal and external political battle if it rejects signed contracts. It was clear that the Hawke government had other priorities, although it gave lip service to ensuring that the situation did not happen again.

15 For example, see "Utah Says Japanese Coal Price the Best Achievable", *Sydney Morning Herald*, 4 May 1984; Deborah Snow, "Bowen Seeks Rod to Curb Coal Loners", *Australian Financial Review*, 3 May 1984; and Hon. Lionel Bowen, "Japanese Hard-Coking Coal Negotiations", Press Release 84/30, Canberra, 2 May 1984.

16 Lionel Bowen, Minister for Trade, as cited in Deborah Snow, "Bowen Seeks Rod to Curb Coal Loners", 3 May 1984.

17 See Deborah Snow, "Unions Threaten Export Blocks in Coal Battleplan", *Australian Financial Review*, 4 May 1984.

Since the spring of 1984 the export permit system has been under almost constant review.¹⁸ The process has undoubtedly been delayed by a change of ministers in early 1985. It is alleged that Department of Trade officials are pushing for a retention of the system, and perhaps modifications to make it difficult for the events of 1983 and 1984 to reoccur. On the other hand, central agency officials are portrayed as anxious to continue the government's thrust towards deregulation by radically reforming (read "weakening") the current system.¹⁹ As we shall see in the next section, other groups would also like to see changes to the export permit system: some would increase its powers, some wish to essentially retain the *status quo*, while others would like to see it drastically weakened, perhaps even eliminated. Let us gradually reveal these views by first exploring the scheme's alleged strengths and weaknesses.

Analysis of the Export Permit: Advantages

The export permit system should be seen as an attempt to redress the effects of oligopsony.²⁰ It does so in a number of ways. First, it aids sellers by reducing the feasible negotiating range available to collusive buyers. Second, it facilitates collective action on the

¹⁸ For example, see Hon. Lionel Bowen, Minister for Trade, "Conference Opening", a speech published in *Coal - A Reappraisal*, Proceedings of the 1984 Australian Coal Conference, Surfers Paradise, 2 April 1984; Senator Gareth Evans, "Government and the Coal Industry", unpublished address to Pacoal 1985, Brisbane, 30 April 1985; Senator Gareth Evans, Press Release 85/85, Canberra, 20 September 1985; and Senator Gareth Evans, "The Outlook for the Resource Sector", unpublished address to the Bureau of Mineral Resources Review Conference, Canberra, 19 March 1986, p. 5.

¹⁹ This view is presented in Deborah Snow, "Hints of New Approach to the Coal Trade", *Australian Financial Review*, 14 September 1984. It should also be noted that Prime Minister Hawke has suggested that the EPS might be eliminated. For instance, Glenn Dyer, "Trade Department Hit Hard By Exodus of Experienced Bureaucrats", *Australian Financial Review*, 3 December 1984, states: "Complicating the matter has been pressure from advisers in the Prime Minister's Office on the resource guidelines. One adviser in particular has been saying that there is a good case for the guidelines system to go or be modified, a position Mr. Hawke suggested in a speech earlier this year".

²⁰ For elaboration, see chapter 5.

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part of sellers by ensuring that no other Australian producer can undercut the cooperative bargaining unit while they are negotiating. Third, and related to the above, an export permit system can preclude "irresponsible" pricing agreements; that is, it can prevent unnecessary price cutting which merely dissipates aggregate producer rents.

Perhaps the major advantage of an Australian-style export permit system is that it provides a ready-made vehicle for initiating, without public fanfare, informal collusive agreements. The contract approval system can be used to carry out multi-country agreements without changing current operating practice. Furthermore, the permit scheme helps Australia avoid some of the problems posed by U.S. anti-trust activity. Although certain types of export cartels are sanctioned by the Webb-Pomerene Act, many U.S. based firms are hesitant to enter into collective selling activities. However, their reluctance is effectively overcome by an export permit scheme; although they may refuse to sell collectively, U.S. subsidiaries are precluded from actively working against the cooperative efforts of others.

Another benefit of the export permit system is that it acted as a catalyst in the formation of the ACA's market study groups. These groups address the very issues that are at the core of a coordinated selling scheme. However, there is no concrete evidence that coordinated tactics have, in fact, been undertaken. Nevertheless, some of the producers interviewed for this study felt that the study groups had brought them closer together and improved their understanding of the potential benefits of collective action. However, they are quick to point out that operational methods for doing so have not yet been developed to their satisfaction.

In summary, it should be stated that the export permit system appears to have substantial public support; indeed, as a result of the negotiating difficulties of 1983 and 1984, many editorials and articles in the business press called for tougher enforcement of the regime. As expected, the unions also want tougher controls. They perceive the current scheme to be ineffective and weak. Surprisingly, it appears as if many producers also support retention of the scheme, albeit with modifications.

Problem Areas

One can argue on a broad conceptual level that Australia, acting alone, can do little to influence the coal markets of the Pacific Rim. Although it does supply approximately 45 percent of the Japanese coking coal market, and more than 30 percent of total world seaborne trade, too many alternative sources of supply exist and the potential for rapid technological change is substantial.²¹ In other words, the short and long-term elasticities of supply are high and so is the elasticity of substitution between metallurgical and other types of coal in the steelmaking process. Thus, much uncertainty exists as to how much Australia can do on its own.

The primary purpose of this section is to address the administrative and organization problems besetting the export permit system. Even its supporters are frequently troubled by several aspects of the system. For example, a review of submissions by the ACA to the Minister of Trade makes it apparent that producers have the long-standing complaints common to virtually all participants in regulatory regimes. They perceive the system as being too complex and too slow, staffed by officials with an inadequate understanding of commercial reality and the coal industry, and used for purposes other than for which it was originally promulgated. Let us now look at these concerns, as well as other potentially troublesome issues.²²

Complexity

As noted previously, the actions of even one coking coal producer, particularly in the Japanese market, can have a major, long-term

²¹ See chapter 2 for a discussion of these issues.

²² The problems discussed herein are based on personal interviews with officials in government, industry and academe; "Transcripts of Proceedings" of the court case between Curragh Coal and the Commonwealth Government (more properly, Curragh Coal Sales Pty Ltd v. Wilcox, Bowen and Walsh); R. Carden, CRA Ltd., "Coal Exports and Government Policy", unpublished paper presented to Pacoal 1985, Brisbane, 30 April 1985; and Australian Coal Association, "Export of Coal from Australia", Submission to the Hon. John Dawkins, Minister of Trade, 22 February 1985.

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impact on the market. Hence, it is not surprising that it occasionally takes time for bureaucrats to make the required decisions. Nevertheless delays can result in lost opportunities, especially in the non-Japanese market. In particular, the industry believes that the current system responds poorly to their needs in the spot and tender markets. For example, a review of the information presented at the Curragh court case,²³ the only public record of the activities of the Export Permit System (EPS) Secretariat, certainly supports this contention.

In May 1984, the Curragh Coal Company (henceforth denoted as Curragh) attempted to bid on a tender offered by the Steel Authority of India Ltd. (SAIL). As required, Curragh approached the Department of Trade to obtain the necessary negotiating parameters. They were given a price which was higher than the other three Australian bidders. In the eyes of Curragh this was discriminatory treatment. According to the company, the low bidder can be expected to receive the contract in the normal course of events, so why should Curragh's bid be rendered uncompetitive by the EPS? The company was also upset by claims that the parameter-determination process was highly subjective. Curragh's suspicions were, without doubt, confirmed by the testimony of Department of Trade officials. They acknowledged that they had no master formula for setting individual parameters. However, in their defense, it must be stressed that given the multiple factors involved it is difficult to imagine that the task could ever be handled by a "grand" equation.

An examination of the testimony of DOT officials clearly reveals the nature of the dispute; it is one that is unlikely to be reconciled as long as administrative (as opposed to market-oriented) procedures are utilized for determining prices. In the department's view, Australia was well placed to receive the contract, especially because of its substantial transportation advantage over its competitors in the Indian market. Furthermore, they perceived that Curragh, located in Queensland, possessed a small locational advantage over its NSW-based competitors such as Kembla Coke and Coal (KCC). Thus, according to the department, Curragh's locational rents should be captured by Australia.

²³ "Transcripts of Proceedings", Curragh Coal Sales Pty Ltd v. Wilcox.

Equally important, the Department of Trade perceived Curragh's coal to be of superior quality to that being offered by its Australian competitors. These attributes were deemed to be of sufficient interest to the purchaser to entice SAIL to pay a premium price; once again, according to the DOT logic, these rents should be captured by Australia.

Although the argument has strong theoretical underpinnings, it can, if carried to its logical conclusion, reduce the tendering process to a random number exercise. That is, if the department adjusts each bid so as to fully reflect the purchaser's marginal evaluation of each type of coal, the buyer can be expected to be indifferent between the various bids. Although this makes strong sense from a rent-maximization perspective, it precludes one company from obtaining a competitive advantage over another. In a world of privately-owned profit-oriented firms, this is difficult to accept; indeed, it probably seems blatantly unfair to the more efficient producers.

A similar, although perhaps less stark problem exists with respect to spot sales. By their very nature, these markets are characterized by substantial price variation over the medium term. Producers attempting to sell in such markets find it difficult to obtain parameter approval from the DOT for sales at less than long-term prices. Similarly, the parameters issued by the department are said to be frequently outdated before they are released to the applicant. On the other hand, the department is justified in adopting a cautionary policy if, in fact, Australia's major market is beset by oligopsonistic tendencies. For example, if an Australian producer sells to a European customer at a c.i.f. price which is less than that being sought from the Japanese steel mills, then those bargaining in Japan may find their position undermined by this new reference price.

This argument dramatizes the quandary facing the Department of Trade. If they wish to capture maximum rents from sales in the Pacific Rim where the Japanese are price setters,²⁴ they must

²⁴ This is a widely held view throughout the Canadian and Australian coking coal industry. Although public information is scanty, the view was promulgated on two occasions at the Curragh court case, by J.M. Wilcox, formerly responsible for the administration of the EPS, and now Chairman of the Joint Coal Board. See chapter 4, footnote #43.

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not allow for full flexibility in the spot and tendering market. On the other hand, this works at cross-purposes with another government objective: the desire to diversify away from the Japanese market as rapidly as possible.

In summary, the export permit system was designed to address the problem of coordinated Japanese buyers facing uncoordinated Australian sellers. In this task it appears to have generated reasonably strong industry support, and to have attained, at least in part, its objective in the Pacific Rim market. Unfortunately, the system does not perform as well in other markets, especially those which require speedy, flexible parameter determination. Possible solutions to this quandary will be presented later in this chapter.

Personnel Issues

It is easy to understand why industry officials perceive the EPS to be administered by "unqualified" personnel. The department is staffed predominantly by career public servants who, by definition, do not possess extensive backgrounds in commerce, marketing and the technical aspects of the coal industry. However, this does not make them unqualified to administer a system designed to capture rents, and to ease the impact of technological change on various groups and regions of the country. Essentially, the debate boils down to whose preferences are to count in determining public policy. If only the mining industry matters, then the bureaucrats are probably unqualified for the task at hand; however, if the public interest is more broadly defined, generalists may be the appropriate choice since their strength lies in reconciling the diverse and competing interests of society.

Distributional Considerations

An ongoing source of controversy in the Australian coal industry has been the impact of technical change. As expected, the unions have attempted to ensure that the jobs of the underground coal miners are protected to the maximum extent possible. The underground operations are generally old, high-cost, small scale, and,

equally important, almost invariably located in New South Wales. Recent additions to the capital stock have been primarily open-cut, highly capital intensive, and usually located in Queensland.

Given the structure of the Australian union movement, different unions tend to represent the miners in underground and open cut operations. In the former group, the Miners' Federation dominates; it is a politically powerful union with extensive ALP connections. Not surprisingly, the Miners' Federation has constantly called for tighter government control over the industry,²⁵ and has taken a keen interest in the annual bargaining sessions between the Japanese steel mills and Australian producers. Although true intentions cannot be determined without insider information, the Miners' Federation's actions are quite consistent with a job-protection strategy. In this regard, the export permit system is a potentially useful policy tool. From the union's perspective, if prices decline, some of the old underground operators will be forced out of business. Hence, a price maintenance system is useful, even if it leads to a slight reduction in aggregate output. This response is undoubtedly due, in part, to the fact that the impact of the latter event is expected to be borne primarily by the open-cut operators and ultimately by members of other unions.

Another example of the distributional impact of the export permit system can be found in the realm of federal/state politics. Any action to save jobs in underground operations is seen to benefit NSW at the expense of Queensland. This has recently led the Queensland Premier, Bjelke Petersen, to suggest that the system is merely a poorly disguised instrument designed to hinder the efficient Queensland producers to the benefit of the inefficient NSW producers.²⁶

The issue of job protection at underground mines surfaced in 1984 and 1985. It centered on the problems faced by Kembla Coke and Coal (KCC) and the resulting use of the export permit

²⁵ For example, see Australian Coal and Shale Employee's Federation (Miners' Federation), "Miners' Federation Policy on an Australian Coal Marketing Authority", unpublished paper, Sydney, February 1985.

²⁶ For press reports, see Robert MacDonald, "Coal Companies Urged to Reject Task Force Proposal", *Australian Financial Review*, 9 April 1984; and Deborah Snow, "States and Mining Unions May Gain a Say on Export Coal Prices", *Australian Financial Review*, 23 March 1984.

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system to aid the company and its workers. Faced with a massive inventory, poor market prospects, and high cost mines, KCC decided to close down several underground operations. This created great consternation in union and Labor party ranks. Among the bail out operations undertaken by the federal government was, in effect, the waiving of EPS guidelines for KCC with respect to its stockpile.²⁷ Although permission to "dump" was restricted so as not to affect the market adversely, the industry was generally upset by the favouritism displayed towards KCC and the blatant use of the export permit system for job-protection purposes. For some, such actions confirmed their worst fears of state regulatory schemes.

The politicization of the EPS, as epitomized by the KCC debacle, has undoubtedly reduced producer confidence in the export control scheme. This is unfortunate since the system relies heavily on bureaucratic discretion, and an inherently subjective parameter-determination process.

Enforcement Problems

One additional criticism of the export permit system must be addressed: it is alleged by some that the system is a "paper tiger". To support this charge, it is said that Utah was able to break the united front in the 1984 JSM bargaining sessions with relative impunity. As previously stated, this firm purportedly ignored the EPS guidelines and the government found itself with no choice but to approve the resulting contracts. This led the remaining producers to seek approval of a similar deal. To its detractors, this suggests that the EPS is a weak, virtually useless control system.

This may be a rather unfair judgement. Clearly, it is difficult for the government to reject an agreement with the JSM - it can be done, but a major battle must be fought without any clear indication of success, especially in weak market conditions. However, sanctions can still be applied; for instance, a firm identified as a

²⁷ See Deborah Snow, "Dawkins Allows Cheaper Coal Sale to Japanese", *Australian Financial Review*, 17 January 1985; Brian Robbins, "KCC Makes Cut-Price Coal Deal with Japan", *Australian Financial Review*, 8 March 1985; and R. Carden, "Coal Exports and Government Policy".

trouble-maker will almost inevitably find itself with less influence in the complex world of business/government relations. Although concrete proof is lacking, some observers suggest that Utah/BHP may be paying additional taxes as a result of its 1984 deviant behaviour; in fact, for 1984/85, the amount may reach \$A72 million.²⁸ This follows from the fact that the export levy, which has been in place in various forms since 1973 was removed from all producers save Utah/BHP in May 1984.²⁹ Interestingly, no public outcry of injustice accompanied the action. However, it must be stated that the government's policy can be justified on the basis of rent appropriation, since Utah's operations are widely perceived to be the lowest cost in Australia.

Intra-Industry Relations

It appears as if the formulation of a policy response to the export permit system is probably the most divisive and difficult task facing officials in the coal owners' associations.³⁰ This, of course, reflects the fact that the scheme impacts differentially on asymmetric

²⁸ According to the Australian Coal Association, *Coal Industry Financial Survey 1985* (Sydney: Australian Coal Association, 1985), p. 10, the industry paid \$A72 million in Coal Export Duties for the fiscal year ending 30 June 1985. However, as noted in the text, all of this tax was paid by Utah/BHP.

²⁹ For details, see Deborah Snow, "Government Gives Tax Break to Two Queensland Coal Mines: BHP and Utah Miss Out on Exemption", *Australian Financial Review*, 30 May 1984.

³⁰ This view is based primary on interviews held with officials of the coal owners' association and member companies. Further support can be found in Australian Coal Association brief to the Minister of Trade: "The removal of all export price controls would be strongly supported by some sections of the coal industry who have a need to increase volume. Others would see that export price controls provide them with worthwhile protection. ... On the one hand, there is a view that open cut mines with surplus capacity would increase volume at the expense of underground mines. On the other hand, there is a view that customers will always seek diversification of supply and are prepared to pay some premium to achieve it. It would not be in the interests of government or any other party to suddenly change the present system because of the uncertainties expressed above ... The Association takes the view that coal export control regulations should be modified by a process of steady deregulation, with review at intervals during the process". (Source: Australian Coal Association, "Export of Coal from Australia", pp. 4-5).

mines. Let us now look at the divisive issues and how the associated benefits and losses are distributed across the industry.

From the preceeding analysis it is apparent that those producers closely associated with the Pacific Rim market have the most to gain by a set of government policies which increases their bargaining power. Alternatively, those producers attempting to break into other markets, especially spot and tender markets, are much less enthusiastic about the scheme. The preceeding section indicated that the current version of the EPS does not provide the flexibility needed by sellers in these markets. The second allegation is that the EPS favours underground over open-cut, and high-cost over low-cost operations. From an efficiency point of view, there appears to be some substance to the charge. Nevertheless, from a broader public policy point of view, such a practice is defensible if the market would otherwise lead to rent dissipation through destructive competition.

The final issue to be considered is related to the problems generated by strong dependency on the Japanese market. For example, if open-cut mines possess substantial unused capacity, then strong incentives exist for operators to initiate price-cutting policies. Although each firm may clearly recognize that its actions adversely affect the market, survival objectives dictate that attention be focused on the present. Others may perceive market interdependency to be insignificant; that is, they believe that their demand curve is elastic over the relevant range of operation. Not surprisingly, these are the very producers the system was set up to guard against. If the demand curve is price inelastic, and if monopsonistic practices are followed by the buyer, virtually any price reduction generates a negative impact on all other producers. Since national boundaries are assumed to demarcate "real" from "pecuniary" transfers, such price competition leads inescapably to rent dissipation - hence, the rationale for the EPS.

The counter argument focuses on markets outside of the Pacific Rim. According to this school of thought, if Australia wishes to diversify away from Japan and to compete aggressively in competitive markets, the inherently aggressive firms are the very ones to be encouraged. Once again, the debate focuses on the trade-off between the benefits from supply management in the Pacific Rim market versus potential losses in other regions.

In pragmatic terms, the dispute centered on the desire of the low-cost producer with excess capacity to be free of the EPS's restrictions so as to be able to aggressively pursue new markets. In the past few years the low-cost old producers have operated significantly below capacity. This is primarily because the JSM have cut back severely on these producers in order to make room for the output of the new Canadian and Australian mines. This policy has been followed despite its incremental cost. Consequently, the older low-cost producer must aggressively pursue new markets. Indeed, some of these operations, such as Utah/BHP, have been relatively successful in doing so. However, they are clearly hampered by the EPS. Nevertheless, the government is reluctant to accommodate their desires. For example, Utah/BHP might capture substantial markets directly from other Australian producers. Alternatively, its actions could divert additional supplies into the Japanese market from non-Australian sources. Either way, higher cost Australian producers, many of them underground operations based in NSW, could be adversely affected. Perhaps even more damaging, this policy could result in a substantial transfer of surplus to consumers if prices fall significantly.

It is undoubtedly apparent to the reader that such conflicts are not amenable to easy solutions if the market is characterized by price inelasticity and monopsony. However, some suggestions for change have been made and will now be discussed.

Solutions and Modifications

Market Differentiation

Perhaps the most widely discussed proposal for change is to leave the EPS in place in the Pacific Rim, and perhaps western Europe, but to eliminate it, either formally or informally, in all other markets.³¹ This argument follows from the indisputable fact that the system was devised to apply to the Japanese market. Although

³¹ For example, see Australian Coal Association, "Export of Coal from Australia", p. 5.

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it appears to operate reasonably well in that domain, it has shown itself to be cumbersome and inflexible in other markets. According to the "separate markets" advocates, as long as the system is retained for Japan, Korea and Taiwan, the original objectives can still be achieved. However, by dismantling the EPS elsewhere, Australian producers can aggressively pursue badly needed diversification policies.

Unfortunately, this argument ignores the strong interrelationship between markets. If Australian producers sell for c.i.f. prices less than those currently available to the JSM, the latter group will be quick to demand equal treatment. Indeed, the JSM may even be troubled by differential f.o.b.t. prices. Reliance on microeconomic theory, especially arguments related to marginal cost pricing and profit maximization, is not apt to fall on receptive ears.

In summary, if prices decline in the Japanese market due to the need to keep prices in line between regional markets, then the market differentiation strategy could be costly; it could lead to a loss of rents. On the other hand, as dependency on the Japanese market declines, and as market growth increasingly occurs outside of the Pacific Rim, the separation policy may be increasingly attractive.

Incremental Sales Strategy

In order to avoid some of the problems associated with the market separation strategy, a new proposal, denoted herein as the "incremental sales" strategy, has recently surfaced. According to its proponents, the feedback on the Japanese market can be minimized if firms are allowed to utilize price competition in order to acquire incremental tonnage beyond base year contract levels. That is, if a buyer is willing to purchase, say, more than 100 per cent of the prior year's tonnage, the incremental tonnage should be removed from the purview of the EPS. This would allow a firm such as Utah to move extra tonnage by aggressively pricing its coal in Europe, for example. Given its unused capacity and relatively low marginal cost, it could increase its profits substantially by pricing at less than the prevailing JSM price.

The model is appealing in that it appears to be nondiscriminatory. If the Japanese are willing to take more than some specified percentage of base tonnage, they too can benefit from the same offer. This, of course, is a thinly veiled ruse, since the JSM currently only accept approximately 70 percent of their contracted tonnage. Unfortunately, the JSM could cut their contracted tonnages in order to be in a better position in the next fiscal year, to take advantage of the so-called incremental system. Methods of coping with such games-playing would have to be introduced. Furthermore, some European customers might be upset if nations not presently purchasing from Australia were able to purchase all of their supplies at the low, marginal price, while they were forced to acquire part of their supplies at the higher JSM determined figure. Moreover, if as a result the Japanese steel mills pay higher average c.i.f. prices for coking coal than their competitors, they may divert sales, to the extent it is economically feasible, to non-Australian suppliers.

In summary, the incremental scheme, if applied judiciously, has appeal. However, if carried too far, it generates the same feedback pressures on the Japanese market as the blatant separate markets proposal.

Commercial Orientation

A third option is to increase the emphasis on commercial reality in the decision-making process. As outlined earlier, the EPS is often criticized by producers for failing to take adequate account of business factors in the parameter-formulation process. Perhaps the best example of what can be done is to refer the reader to the Fraser government's success in defusing the foreign investment debate in the mid-1970s.³² This was done, in part, by appointing a board of retired business officials to make recommendations to the minister (the Treasurer) on the viability of individual investment projects. This manoeuvre helped assure the business community that issues of commercial reality would be given serious consid-

³² See David L. Anderson, *Foreign Investment Control in the Canadian Mineral Sector: Lessons from the Australian Experience* (Kingston: Centre for Resource Studies, Queen's University, 1984).

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eration. The performance of the Foreign Investment Review Board, and indeed the bipartisan nature of foreign direct investment policy in Australia, suggests that such a scheme could be utilized in the export permit review process.

Nevertheless, the scheme has its detractors. The essence of the debate is that, when the chips are down, industry probably prefers to have an ill-informed neutral public servant decide its fate rather than a knowledgeable but perhaps biased insider.

Summary

The export permit system was a pragmatic response to a pressing political problem: the need to ensure that Australia receive a fair price for its coking coal resources. In practice, the scheme attempts to counteract the collective buying practices of the Japanese steel mills by instituting a quasi-collective response on the part of the sellers. Although it is difficult to determine whether or not the EPS has succeeded in reducing the transfer of rents to the Japanese from the level prevailing in a world without the EPS, casual empiricism does suggest some success. Perhaps the best indicators are:

- Japanese hostility to the concept;
- moderate support from a large segment of the mining industry;
- general support by the financial press during tense negotiating periods;
- widespread public support.

On the other hand, the EPS is beset by problems. Although some of these are of an administrative nature, others are more fundamental. Perhaps the most pressing problem is that the EPS performs poorly in markets outside of the Pacific Rim. Thus, firms requiring a high degree of negotiating flexibility are strong critics of the EPS. Their concerns extend beyond narrow self-interest. If Australia is to reduce its dependence on the Japanese market, it must be free to compete aggressively in other markets. However, by doing so, they could easily erode, at least in the short to

medium term, the bargaining position of Australian producers still dependent on the JSM.

Adding to this problem of optimal market strategy are distributional issues which can ultimately be reduced to problems which would face high cost producers, their workers, and surrounding communities if the EPS were to be dismantled. The overall impact on Australia is ambiguous. It depends critically upon the relevant elasticities of supply and demand, both now and in the future. It also depends upon whether the analysis is restricted to efficiency considerations or broadened to include social costs and benefits. Given that the latter issues dominate political debates, it is reasonable to assume that distributional issues will dictate that some form of EPS remain in place long after the current review process is completed.³³ As evidenced by widespread cries for even stronger controls during the negotiating crisis in 1983 and 1984, the commonwealth government would be in a difficult political situation if it were to dismantle the controls and

³³ The results of the review process were announced by Prime Minister Hawke on 17 September 1986, after completion of this study. Hence, the nature of the revisions can only be outlined, not analyzed. Accordingly, the full text of the Acting Minister for Trade's statement, with respect to coal-specific revisions of the Export Permit System, is presented below: "For coal the administrative guidelines, which required companies to obtain approval of their proposed negotiating parameters, have been removed. This represents a considerable streamlining of the administrative process, designed to remove much of the uncertainty and delay inherent in the previous administrative guidelines. In future, exporters will be free to conduct negotiations in accordance with their own commercial judgements. Export approval will, however, still have to be obtained following completion of negotiations. Exporters are required to inform the Department of Trade promptly once a settlement has been reached and to supply copies of contracts. There will continue to be close consultation between the Department of Trade and exporters on international market perceptions. The Minister for Trade will continue to oversee the conduct of Australia's coal trade. The power to withhold approval has been reserved to ensure the national interest is protected. Sales and contracts will be monitored for this purpose". (Hon. John Kerin, Acting Minister for Trade, "Relaxation of Export Controls", Press Release 86/65, 17 September 1986, p. 1.)

In addition, on the following day, the Acting Minister for Trade also announced that: "a Labour Caucus Committee has been formed to provide advice to the Minister for Trade on criteria for judging 'national interest' provisions in any exercise of his powers relating to coal export controls". (Hon. John Kerin, Acting Minister for Trade, "Coal Exports - National Interest Provisions", Press Release 86/66, Canberra, 18 September 1986.)

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then be faced with demands by the JSM for substantial coking coal price reductions.

In summary, the export permit system represents a reasonable compromise between the host of competing interests at play in the Australian political arena. It is also another example of a pragmatic approach to handling the delicate trade-off between efficiency and equity issues. Thus, although detractors do exist, some form of government price monitoring is likely to be an indispensable part of the public policy tool kit in Australia for the foreseeable future.

7. Australian Policy Responses - Other

Introduction

In the preceding chapter I explored one policy response instituted for the express purpose of improving Australia's bargaining position vis-a-vis the Japanese steel mills: the export permit system. Other policies can and have been used for the same purpose. Let us now investigate, albeit in a rather cursory fashion, seven such initiatives.

The Australian Coal Association: Market Study Groups

Industry associations provide a forum within which collective responses may be formulated to address critical issues facing the industry. The concomitant social interaction can be expected to increase the level of trust which, in turn, increases the range of policy responses available to the organization.¹ The Australian Coal Association (ACA) undoubtedly serves such a purpose. It is an active and apparently effective industry lobby group which has been able to work closely with governments of all political stripes. Perhaps the most important ACA activity with respect to this project is its market study groups.²

¹ See chapter 5 for a discussion of the role of industry associations in cartelization policy.

² As noted in the preceding chapter, on 17 September 1986, the Australian government announced major changes to its export permit system. Since this study was completed, except for minor revisions, in June 1986, it does not address the new export permit system. The same argument applies with respect to the market study groups. As is discussed in this chapter, they were set up to perform a key role in the EPS process; this function changed somewhat with the 17 September revisions to the EPS structure. Hence, on 14 October 1986, the market study groups were disbanded. However, according to a senior official of the Australian Coal Association (ACA), the ACA will continue to provide market information to the Department of Trade through the ACA's Export Committee. At each meeting of this committee, the members will decide whether or not market information should be transmitted to the

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In April 1983 the ACA formed an Export Committee for the purpose of:

(I) Advising the Association on issues relevant to the export of coal from Australia, including market circumstances and coal transportation matters;

(II) recommending to the Association appropriate industry actions to be taken in order to deal effectively with specific coal export issues as they arise;

(III) providing regular reports on current market circumstances to the Association for review and transmission to the Department of Trade and meeting regularly with representatives of the Department with the view to interchanging ideas and achieving a consensus of opinion regarding export market developments.³

In addition, they formed nine market study groups (MSGs) to study each of the major markets for Australian coal exports.⁴ These groups were to provide detailed information on the emerging events in their respective markets to the ACA's Export Committee. In practice, the MSGs were formed to address the third objective of the Export Committee: to provide advice to the Department of Trade with respect to the parameter estimation process, an integral part of the Department's export permit system. Hearsay evidence has suggested that the MSGs were expected to foster informal collective bargaining responses, especially in the market of the Pacific Rim. Furthermore, it is conceivable that the study groups could also facilitate international cooperation, especially

department. In summary, according to the ACA, the role of the market study groups as described herein will be performed by the ACA's Export Committee; however, consultations with the Department of Trade will be far less extensive and less frequent than under the old regime. (Source: Personal communication, Australian Coal Association, 16 October 1986.)

³ Australian Coal Association, "Terms of Reference Export Committee", unpublished, Sydney, 14 April 1983.

⁴ For details, see Glenn Dyer, "'Australia Inc.': Coal Industry Forms United States Front", Australian Financial Review, 5 May 1983.

between Canada, South Africa and perhaps even some U.S.-based firms. That is, in countries where the producing units are privately owned, industry-to-industry groups may be even more important than government-to-government arrangements in preparing collective responses by suppliers. However, there is no tangible evidence to support these allegations.

The ACA's rationale for establishing the MSGs is germane to this study. It is widely acknowledged by industry officials that the major catalyst was provided by two interrelated events. In March 1983 the Australian Labor Party, under the leadership of the Hon. Bob Hawke, assumed power. A long standing concern of the ALP was the lack of unity among Australian sellers in the face of coordinated purchasing tactics. Hence, stronger export controls, perhaps even a national marketing authority, might have been seriously entertained by the new government. Furthermore, the 1983/84 coking coal negotiations between Australian producers and the JSM which took place in early 1983 turned out to be a disaster from Australia's perspective. Once again, much of the blame was attributed to the lack of coordination among Australian producers.⁵ In response, the ACA launched a preemptive strike. By forming the MSGs, they acknowledged the problem and, more importantly, indicated that they were willing to help the government prevent its reoccurrence.

The May 1984 negotiations were even more turbulent and politically embarrassing for the Hawke government than the 1983 debacle. As discussed in chapter 6, BHP and Utah were widely accused of selling-out and breaking the common front. Thus the critics of independent bargaining were again calling for stronger export controls. On the other hand, the ACA faced calls from some of its members to weaken the powers and role of the market study groups. Although the details are unknown, it would appear

⁵ The market study groups are undoubtedly a political response by the ACA to defuse ALP and union opposition to perceived weaknesses in the bargaining position of Australian producers. For example, *ibid.* states: "Coal companies obviously hope that the co-ordinating committee system will be sufficient to offset any moves within the Federal Government and the trade union movement for a national coal marketing authority, or stricter government controls over marketing ... The move by the industry to establish the committee system is a sign that coal companies have at last grasped the need to co-operate with each other as much as possible in the market place".

as if the ACA found the initial structure of nine committees to be largely unworkable. Some members apparently resented the restrictions on their marketing freedom. Furthermore, the latent hostility on the part of some ACA members towards the export permit system was partially turned against the MSGs, since it was their advice which, in part, prevented aggressive pursuit of new markets.

In response to criticisms from within,⁶ and calls from without for greater cohesiveness in bargaining,⁷ the ACA adopted a compromise position. It reduced the number of groups from nine to two: one for each of the coking and steaming coal markets. Furthermore, the nature of the advice provided to government changed: each committee now provided information on broad trends and emerging issues, rather than specific parameter estimates.⁸ The new version of the MSGs is now more acceptable to ACA members: it provides a useful forum for sharing information and, perhaps, the formulation of broad negotiating strategies. However, the new system is less useful to the Department of Trade. In summary, the market study groups allow the ACA to be seen to help the government protect the national interest, and yet they distance the ACA from potential problems generated by the EPS's parameter-determination process.

In summary, the MSG concept represents an interesting but modest response to oligopsonistic behaviour.

⁶ See Glenn Dyer, "Coal Miners Decry Lost Opportunities", *Australian Financial Review*, 26 October 1983.

⁷ The then Minister for Trade, the Hon. Lionel Bowen, was somewhat critical of the MSGs after they were in operation for several months. This view is presented in Deborah Snow, "States and Mining Unions May Gain a Say on Export Coal Prices", *Australian Financial Review*, 23 March 1984. For example, she states: "The market study groups have had some success and are a marked improvement on the unco-ordinated scramble which previously prevailed. However they have been unable to achieve the degree of consensus which Mr. Bowen - and some in the industry - are looking for ... The prevailing view is that the market study groups will have to evolve into a more coherent source of advice to the government ..."

⁸ "Letter", from J. Yeowart, Chairman, Australian Coal Association, to Hon. Lionel Bowen, Minister of Trade, 17 May 1984.

The Newcastle Seven

In the late 1970s, in response to a perception that unorganized sellers fared rather badly when confronted by organized buyers, a group of Hunter Valley soft coking coal producers banded together to bargain collectively with the JSM. According to press reports and hearsay evidence, the group, which has been labelled by the press "the Newcastle Seven", appears to have met with some success. This view is substantiated by the fact that after several years of cooperation, the group remains active, intact, and committed to collective action.

The activities of the group are not well documented; hence, the following presentation is extremely sketchy. Nevertheless, the basic concept of voluntary collective action is too important to ignore. The group, despite its name, has consisted of a floating coalition of soft coking producers. In 1984 its membership was as follows: Warkworth Mining; Coal and Allied Industries; R.W. Miller; Bloomfield Collieries; Clutha Development; Peko-Wallsend; and CSR through Buchanan Borehole Collieries.⁹ Each year, two negotiators are selected to represent the group in their annual deliberations with the Japanese steel mills. A common price and a total tonnage allocation is negotiated. The tonnage is then re-allocated to individual members on the basis of a prearranged formula. Although success is difficult to quantify, reports in the Australian financial press suggest that the group has been more successful than their hard coking coal brethren.¹⁰ Furthermore, the JSM have continuously expressed their displeasure with the Newcastle Seven;¹¹ nevertheless, they continue to do business with them. Indeed, the percentage of contracted tonnage taken up by

⁹ Glenn Dyer, "Colliers Add to Negotiating Team", Australian Financial Review, 3 November 1983.

¹⁰ For instance, see Jack Taylor, "How the Magnificent Seven Dug in Over Coal", Sydney Morning Herald, 30 August 1984; and Brian Robbins, "Transvaal, Japan Coal Deal Has Limited Australian Impact", Australian Financial Review, 24 January 1985; and Editorial, "What Price Coal", Australian Financial Review, 28 March 1983.

¹¹ These concerns have been mentioned by Editorial, "What Price Coal"; Glenn Dyer, "'Australia Inc.': Coal Industry Forms United Sales Front"; Michael Gill, "Japan Forces Coal Seven to Take Old Price", Melbourne Age, 9 February

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the steel mills from the Newcastle Seven has frequently exceeded 100 percent in recent years; this is in contrast to the 50 to 80 percent figure applicable to hard coking coal contracts. This is an important observation with respect to the overall design of anti-oligopsony policy. Despite the bitter protestations of the JSM, they have continued to buy from the Newcastle Seven because the price is still below the opportunity cost of alternative suppliers. However, it must be stated that similar quality soft coking coal is not readily available in large quantities from alternative sources. Nevertheless, at some unspecified but higher price, it would be in the Japanese steel mills' interest to switch their blend towards greater utilization of other types of coal.

The Australian Coal Consultative Council

The Australian Coal Consultative Council, known as the ACCC, was formed by the Hawke government in May 1983 for the purpose of improving consultation between the three major actors in the coal industry: government, business, and labour.¹² More explicitly, one might say that the ACCC was formed to improve industrial relations. Although this might appear to be a topic outside of the scope of this study, the ACCC does, in fact, play an important part in the government's overall marketing strategy.

The major Japanese objection to trading with Australia, at least with respect to coal, has been its industrial relations record. In virtually every available public forum, such as the annual meeting of the Australia/Japan Coal Conference, Japanese speakers refer to Australia's poor strike record. They suggest that this leads them to view Australia as an unstable supplier; hence the need to purchase higher-priced coal from Canada and elsewhere. Australia has undoubtedly suffered as a consequence of this perception. Perhaps even more important than the possible loss

1985; and Simon Holberton and Michael Gill, "Canadians Undermine Local Coal Producers Tokyo Talks", *Sydney Morning Herald*, 22 February 1985.

¹² More explicitly, "the terms of reference of the Council are to review the economic and structural problems of the coal industry and to report on them from time to time". (Source: Senator Peter Walsh, "Australian Coal Consultative Council", Press Release 83/9, Canberra, 3 May 1983.

of sales is the reduction in bargaining power; this can be expected to result in lower prices.¹³ Thus, any success in reducing Japan's real concerns over security of supply represents a potential increase in Australian bargaining power - in effect, it increases the weight attached to cost factors in the decision-making process. This, of course, works to Australia's advantage and Canada's disadvantage.

In summary, the ACCC has been given widespread credit for improving industrial relations within the coal industry despite the occurrence of several industrial disputes in the 1984-86 period. This improvement in the labour environment should ultimately feed back to the annual bargaining process: if Japanese concerns over security of supply can be reduced, Australia's relative bargaining strength increases.

Joint Coal Board

The Joint Coal Board (JCB) was set up in 1946 by the federal and NSW governments to regulate the coal industry in NSW, at that time the major coal-producing state. The enabling legislation provided the JCB with extensive and, perhaps, unusual powers. It enabled the board to approve and control several critical decision parameters: investment, capacity, utilization, and pricing decisions. Over time, the JCB's role declined dramatically: by the 1970s it had become largely a data collection agency and a worker welfare and occupational health supervisory body.

However, its role appears to be on the ascendancy since the election of the Hawke government. Its administrative structure has been reformed, and a new chairman appointed. Recently the JCB started to collect information on all contracts entered into by NSW producers; some view this as the first step towards a more activist

¹³ Support for this view can be found in Ben Smith, "Bilateral Commercial Arrangements in the Energy Coal Trade", in Stuart Harris and Toyoaki Skuta, ed., *Australia, Japan and the Energy Coal Trade* (Canberra: Australia-Japan Research Centre, 1982), p. 190.

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approach by the JCB on issues of pricing, output, and perhaps, even capacity.¹⁴

A primary reason for the JCB's new strength has been the support provided for it by the Miners' Federation. Although campaigning for a national marketing authority, the Federation appears to have agreed to settle for an expanded and more powerful JCB.¹⁵

Given the current thrust towards deregulation in Australia, it is unlikely that the Miners' Federation will get its wish. Another important reason for the rebuff is that the Joint Coal Board has no power in Queensland. Although the Miners' Federation dismisses this qualification as a problem which can be overcome through appropriate delegation of powers by the commonwealth government, the political reality of federal/state relations makes this a rather unlikely outcome in the foreseeable future.¹⁶

A major impact of the Miners' Federation has been to politicize the coal bargaining process even further. By indicating to the Japanese that some groups in Australia would like to see the government go much further in controlling pricing, output, and capacity decisions, it serves to restrain objections to the current regime. Furthermore, it undoubtedly has the same effect on business/government relations. That is, the Australian Coal Association and its individual members are well aware of the potential political problems that can arise from public dissatisfaction with the outcome of negotiations with the JSM. They undoubtedly remember the Rex Connor days all too clearly; even the fervor surrounding the Utah/BHP surrender in 1984 generated substantial pressure for tougher controls.

¹⁴ Joint Coal Board, "Order No. 37", Sydney, 20 December 1984.

¹⁵ See Barry Swan, "Union Policies and Goals", in *Coal - A Reappraisal, Proceedings of the 1984 Australian Coal Conference* (Sydney: Australian Coal Association, 1984), pp. 215-216.

¹⁶ Perhaps the most vociferous opponent of extending the JCB to Queensland, is the Premier of that state, Hon. J. Bjelke-Petersen. For example, Bjelke-Petersen states: "That is why Queensland is opposed to joining the Joint Coal Board set up. It is a front we believe to export NSW retrenchments to Queensland. It is just not on". (Source: Hon. J. Bjelke-Petersen, "Welcome to Queensland", in *Coal - A Reappraisal, Proceedings of the 1984 Australian Coal Conference* (Sydney: Australian Coal Association, 1984, p. 8).

Before closing this section, it should be noted that even the Joint Coal Board's current mode of operation should help improve Australia's bargaining power. This is for precisely the same reasons that the ACCC is said to have helped the situation: by improving industrial relations throughout the coal chain, the Japanese perception of Australia as a stable and secure supplier should improve over time. The obverse is that more attention can then be paid to cost considerations, which will obviously work to Australia's advantage.

National Marketing Authority

The proposal for a National Marketing Authority has been actively promulgated by the mining-based unions, particularly the Miners' Federation.¹⁷ As noted in the preceding section, the Federation strongly believes that Australia receives inadequate compensation for its coking coal. They attribute much of the problem to the use of superior bargaining structures and strategies by the Japanese steel mills.¹⁸ In order to counteract oligopsony, they believe that a National Marketing Authority (NMA) should be set up by the federal government. According to Federation documents, the NMA is expected to operate in the following manner:

- to coordinate pricing policies among Australian producers;
- to construct a single negotiating body capable of representing a united front to customers overseas;
- to make realistic assessments of productive capacity and future demand;
- to develop the expertise and the skills necessary in negotiation and marketing, to develop long-term negotiating strategies and to enforce those strategies in the national interest;

¹⁷ See, for example, Mining Unions Liason Committee, "Policies for Coal", unpublished paper, March 1983; and Miners' Federation, "Policy on an Australian Coal Marketing Authority", unpublished paper, 14 February 1985.

¹⁸ See Mining Unions National Liason Committee, "The Federal Government, The Coal Consultative Council and the Crisis in the Coal Industry", unpublished paper, November 1983.

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- to ensure the greatest possible co-ordination between Australian producers and producers in other countries to prevent price competition and to ensure orderly international marketing.¹⁹

The Miners' Federation's proposal has met with some political success. It served as the basis of motions accepted by the NSW and the Australian Labour Parties in 1984. For example, the NSW ALP policy platform now states:

The NSW branch of the Labour Party believes Australia's national interest demands the establishment of a national marketing authority to ensure the best possible return from coal to the Australian people.²⁰

Not surprisingly, the Prime Minister²¹ and the then Minister for Resources and Energy²² rejected the ALP proposal as being unworkable and unnecessary. They undoubtedly wished to distance themselves from such a concept in order to allay the fears of the business community. Furthermore, to adopt such a strategy would entail a major political struggle that is unlikely to be fought by any government in Australia at the present time since the incremental benefits obtainable from a NMA are likely to be small and the political cost large, relative to other less controversial policy options.

Nevertheless, the national marketing board proposal should not be dismissed out of hand. First, both Canada and Australia rely heavily on such models to market agricultural commodities. Although the private property concept flourishes in these areas, the producers, by and large, support the concept, particularly in

¹⁹ Mining Unions National Liason Committee, "Policies for Coal", pp. 3-4.

²⁰ As cited in "State ALP Supports Australian Coal Authority", Illawarra Mercury, 13 June 1984.

²¹ See Paddy Ginnane, "I Don't Have a Magic Wand", Illawarra Mercury, 28 January 1984.

²² See Simon Holberton, "No Plan for Resources Authority", Melbourne Age, 25 October 1984.

troubled times. Second, most competitors sell through unified sales bodies. Even South African sales to Japan take place through the industry-owned collective, the Transvaal Coal Owners' Association. Obviously, sales from Poland, China, and the USSR are handled in a collective fashion. Thus the JSM would find it difficult to reject a NMA as unreliable, unworkable, and unacceptable. Nevertheless, in a speech to the 1984 Australia-Japan Coal Conference, a senior official of Nippon Steel stated:

Another concern is that there are some voices in Australia for the establishment of a Coal Marketing Authority. We understand that your opinions, as coal suppliers, are against it. Should a Marketing Authority be established, it would completely change the nature of our transactions. It is true that we also purchase coking coals from centralized selling organizations existing outside the free world. But I wish to stress that our policy is to keep our dependence on these countries within a certain limit in order to avoid supply risks... I think that these moves are something that will much impair the prosperity and soundness of Japan-Australia coking coal trade.²³

Indeed, given their own affinity for coordinated action, it is likely that their hostility is not addressed at the concept per se, but only to the probable outcome: they may lose some influence over the market. However, if Australia adopted the NMA approach, then Canadian and U.S. producers would probably gain in the short term as the Japanese displayed their displeasure by engaging in punitive action. On the other hand, given Japan's willingness to deal with state agencies elsewhere, the long-term implications may be modest. Indeed, the major problems with the NMA proposal are likely to be related to its domestic effects. Despite the high probability that such a concept is not likely to be seriously entertained in the Australian debates, the tactic serves, once again, to relay a cautionary message to the Japanese and the advocates of

²³ Katsushige Tanaka, General Manager, Fuel and Ferrous Materials Division, Nippon Steel Corporation, "The Current Status of the Japanese Steel Industry and Supply and Demand of Coking Coal", unpublished paper presented to the Australia-Japan Coal Conference, Tokyo, 29 October 1984, pp. 10-11.

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unmitigated markets. Exploitation of market power, if carried too far, is dangerous: it can set in motion forces which ultimately lead to a reduction of power for both foreign consumers and privately-owned producers.

Export Duties

Although an export levy has not been imposed on Canada's coal producers, such a scheme has been utilized in Australia in various forms since the mid-1970s. In fact, on 19 August 1975, the Whitlam government announced that henceforth, export coal would be subject to a duty of \$6/t for quality coking coal and \$2/t for soft coking coal and other (thermal) coal.²⁴ The public rationale for the tax, levied under the authority of Customs Tariff (Coal Export Duty) Act 1975, was that the prices for export coal had risen dramatically and that windfall profits were being earned by the export sector of the coal industry and that the Government considered its reasonable that part of these increased profits should be channelled to "the community by means of an export duty".²⁵

In reality, the tax was a political response to charges that Utah International was earning substantial rents.²⁶ Reinforcing this problem was the fact that Utah was foreign owned, and hence Australians were said to be benefiting little from the extraction of its valuable nonrenewable resources. It is difficult to determine if the government also hoped that the levy would capture rents from the JSM. Although no evidence was found to support this position, it should be stressed that at this very time the ALP government was complaining about low prices for coal and other mineral exports. Furthermore, Utah was frequently blamed for sacrificing

²⁴ A concise history is presented by the Department of Trade and Resources, "History of Coal Export Duty", a submission to the Joint Parliamentary Committee of Public Accounts Inquiry into the Auditor-General Report 1979/80, Canberra, 1982.

²⁵ Cited in *ibid.*, p. 1.

²⁶ A related discussion can be found in Susan Bambrick, Australian Minerals and Energy Policy (Canberra: Australian National University, 1979).

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prices, presumably for extra tonnage, with the result that the prices for all Australian exporters suffered.²⁷

The scheme, as expected, was attacked for its non-neutral impact. Indeed, shortly after the Fraser government assumed power in 1976, the then Treasurer stated:

that the Government regarded the Coal Export Duty as an entirely inappropriate form of tax, in that its effects fall in a quite haphazard manner, as marginal fields pay the same rate of duty as economically more profitable fields, or in some cases more, and that it was the intention of the Government to remove this particular levy, but for budgetary reasons it is not possible to remove it in one stroke.²⁸

The producing states, particularly Queensland, opposed the system for its non-neutrality, but the real cause was more likely the distributional impact of the export duties on both the state government and its producers.

As shown in table 13, the commonwealth government did modify the impost on a number of occasions. In fact, since May 1984, the tax applies only to some of the old Utah International mines, now controlled by BHP.

If one assumes that the 1975 coking coal environment was characterized by effective competition, then the charges of non-

²⁷ See Roger Stuart, "Resources Development Policy: The Case of the Export Coal Industry", CRES Working Paper 1983/30, Australian National University, 1983.

²⁸ Cited in Department of Trade and Resources, "History of Coal Export Duty", p. 1.

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COAL EXPORT DUTY CHANGES (\$A per tonne)

Date of Effect	High Quality Coking Coal ^d			Non Coking Coal ^b
	Open Cut	Underground	Other Coking Coal	
19 Aug. 1975	6.00	6.00	2.00	2.00 ^c
17 Aug. 1976	4.50	4.50	1.50	Exempt
16 Aug. 1977	3.50	3.50	1.00	Exempt
1 Nov. 1977	3.50 ^{d,e}	1.00 ^d	1.00 ^d	Exempt
1 July 1980	3.50 ^{d,e,f}	1.00 ^d	1.00 ^d	Exempt
18 Aug. 1981	3.50 ^{e,f}	1.00	1.00	1.00
29 July 1982	3.50 ^g	Exempt	Exempt	Exempt
29 May 1984	3.50 ^{g,h}	Exempt	Exempt	Exempt

Source: Department of Trade and Resources, History of the Coal Export Duty. A submission to the Joint Parliamentary Committee of Public Accounts Inquiry into the Auditor-General Report 1979/80; and Hon. Peter Walsh, "Queensland Mines to Benefit From Coal Export Duty Relief", Press Release 84/13, Canberra, 26 May 1984.

^d Coking Coal with carbon content not less than 85% on an ultimate dry ash-free basis.

^b Coal with a crucible swelling number not greater than 3.

^c Exempt if ash content greater than 14% on an air-dried basis.

^d Exempt if ash content greater than 12% on an air-dried basis.

^e Rate of \$1/tonne for coal mined from below 60m of original overburden.

^f Rate of \$1/tonne for coal from declared new projects or major expansions which started production after 30 June 1980.

^g Exempt for coals in categories of (5) and (6).

^h Exempt if more than 15% of a mine's total coking coal production consists of coal from underground mines blended with open-cut production.

neutrality are undoubtedly correct. It was, and is, an extremely crude rent capturing device; indeed, it is difficult to imagine a more unsophisticated way of capturing rent. Although the Treasurer quickly adjusted the impost to recognize the high-cost/low-rent nature of underground mines, he failed, for years, to recognize the great variation in costs between open-cut operations. Finally, by 1984 the regime was restricted to mines which probably were earning rents in excess of the magnitude of the tax.

Before concluding, it must be stressed that the critics of the levy have ignored the role of market structure. That is, they have implicitly assumed that the export coking coal industry operates in a competitive fashion. If, as this study argues, the major consumers operate as a cartel, then the export duty may have a much stronger claim to legitimacy. Nevertheless, such schemes are unlikely to operate effectively because the optimal tax rates are difficult to estimate; they change continuously over time, and they generate severe distributional impacts within the home country.

In other words, the government of the day might have been able to generate domestic support for the export duty if it had stressed its role in generating higher prices for Australia's coking coal exports. This might have generated enough support to counteract the opposition of the losers, the coal producers and their host state governments. Furthermore, as prices declined and it became apparent that few producers were earning rents, the economic rationale for the tax largely dissipated. On the other hand, to have stressed that the export duty was designed to extract higher prices from the Japanese steel mills might have triggered a supply diversification response which would have worked to Australia's long-run detriment.

Freight Rate Policy

From the very start of the development of large scale open-cut coking coal projects in Queensland, the state government, which is reputed to be blatantly pro-business, instituted an ingenious hidden taxation scheme through the state-owned rail system. Un-

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der this scheme, as described by Barnett,^{29,30} the individual producers were required to sign mine-specific contracts with the Queensland Railway. They were to pay a negotiated tonne rate but were also required to pay up-front for the rail infrastructure and the rail engines and cars necessary for hauling the mine's anticipated output. Although this up-front fee was ultimately repaid by the Queensland Railway, the tonne/mile rate also contained a component to cover the railway's capital costs. In part, the scheme was designed to allow producers to write off infrastructure outlays against income for federal income tax purposes; for many years, such expenses had not normally been deductible in Australia. The net effect was that the companies paid 100 percent of the capital costs of the lines and equipment, and paid a tonne/mile rate that was greatly in excess of any reasonable operating cost estimate. This convoluted scheme has been described by Barnett as follows:

In summary one can say that in Queensland the coal developer pays for the railroad twice and receives back the cost once.

This means that the cost of the railroad to the producer is given by the present value of the Security Deposit (the initial payment) less the sum of the annual or bi-annual Security Deposit Repayment plus the sum of the per tonne Security Deposit Rate payments contained in the rail freight less the Federal income tax avoided by the Security Deposit Rate payments.³¹

²⁹ The following description of the Queensland freight rate scheme borrows heavily from Donald W. Barnett, "Rail Freight and the Cost of Australian and North American Exports Coal", *Journal of Business Administration*, vol. 15, no. 1-2, 1985.

³⁰ Additional information can be found in Roger Stuart, "Resources Development Policy: The Case of the Queensland Export Coal Industry"; and J.H. Cassing and A.L. Hillman, "State-Federal Resource Tax Rivalry: The Queensland Railway and the Federal Export Tax".

³¹ Donald W. Barnett, "Rail Freight and the Cost of Australian and North American Export Coal".

The underlying objective of this policy was to capture rents for the state government. Although it is an understandable objective, one might ask why this rather unusual approach was adopted.³² Several reasons can be advanced. First, under the Australian federal/state equalization scheme, any incremental tax revenue captured by the Queensland Treasury would have led to a partial reduction in federal grants. Instead, incremental freight revenue escaped tax-back provisions of the equalization scheme. Furthermore, even if the Grants Commission changed its rules to take account of parastatal profits, this would have had no effect on Queensland, since the SRA does operate at a profit; instead, the increased revenues have been used to cross-subsidize Brisbane commuters and the agriculture sector. Furthermore, freight rate payments can be written off as an expense of operation by the producers, whereas a substantial tax might have been deemed to be nondeductible for income tax purposes.

An additional advantage of the freight rate tax is that, in a state extolling the virtues of private business and low taxes, the use of the railways to capture rents eliminates the politically difficult task of explaining away a large tax grab at the expense of the coal producers. Although one could resort to the theory of rent for defence, it lacks public sellability. The hidden-tax/freight-rate approach is not fully understood, and the tax component is open to debate. Hence, for years the scheme has been bemoaned by producers but, until recently, to no avail. In other words, the Queensland freight rate structure is an ingenious, politically astute policy.

Nevertheless, the freight rate tax has started to come under increasing scrutiny in recent years, primarily due to its distortionary effect on producers which is severe during periods of depressed prices.³³ In such an environment, fixed freight rates are a significant cost factor and may result in the generation of accounting losses for many firms; they may even be so severe as

³² Some of the following ideas can be found in J.H. Cassing and A.L. Hillman, "State-Federal Resource Tax, Rivalry: The Queensland Railway and the Federal Export Tax".

³³ For details, see *ibid.* and Donald W. Barnett, "Rail Freight and the Cost of Australian and North American Export Coal".

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to result in a negative cash flow. The federal government has attacked the scheme for its nonneutrality, as have economists and members of the financial community. In depressed market conditions, their arguments are difficult to fight: the system can lead to mine closures, and to the postponement of construction of otherwise viable mines.

However, the virtues of the system as a rent-capturing instrument are seldom extolled. It is assumed by most critics that a rent tax, levied on a rate-of-return or cash-flow basis, is inherently superior to a quasi-unit tax. As outlined in the preceding section and in chapter 5, this argument ignores the use of market power by consumers: in oligopsonistic markets, profit-based levies fail to recapture rents now being appropriated by the buyer. On the other hand, an "excess" freight rate levy does so, albeit partly at the expense of producers and the federal government.

Despite my argument that a freight rate tax is not without merit in oligopsonistic markets, the Queensland version is excessively non-neutral in its impact. For instance, the tax rate fails to reflect changing economic conditions. Thus, situations can arise wherein the tax may appropriate more than 100 percent of producer rent. In fact, it is even less flexible than the export duty, which has been changed on a periodic basis. Unfortunately, for purposes of tax neutrality, the freight rates agreements generally have a 10- to 15-year life. Furthermore, the Queensland Treasury has negotiated progressively steeper effective tax rates for each new mine.³⁴ Indeed, this accounts for some of Utah's apparent success: it was early in the game.

In summary, during the boom times the freight rate tax was a rather successful levy, in that it captured rents, yet did little to forestall development. However, the market downturn of the early 1980s revealed a distortionary effect of almost crippling proportions on otherwise marginal mines. According to Barnett, the overall impact of the Queensland freight rate policy is as follows:

³⁴ Supporting information can be found in Roger Stuart "Resources Development Policy: The Case of the Export Coal Industry"; and G. Sturgess, "Queensland Puts the Squeeze on Coal Miners", *The Bulletin*, 25 November 1980, pp. 118-123. Also see appendix I, table 29.

Whatever the actual breakdown there is no doubt the Queensland Government has hit upon a very effective rent collecting device. However one should be concerned about the fixed nature of the rail freight, the complete non-relation of the charge to the real profitability of the mine project and hence the long-term effect upon the development of the Queensland Coal Industry. In the short run the Queensland Government is on a winner but in the long run it may well lose the opportunity for greater coal development and rent collection.³⁵

Conclusion

This chapter has provided a discussion of a number of policy responses adopted, or proposed for adoption, in order to obtain better prices for Australian coking coal. It was demonstrated that each option has merits and demerits. Furthermore, those with sound theoretical bases often lack practical attributes.

Although only tangentially related to anti-oligopsony strategies, both the Australian Coal Consultative Council and the Joint Coal Board are observed to play an important part in improving Australia's bargaining position. They do so by improving the country's image as a reliable supplier; thus, Australia, the low-cost, high-volume producer, should be in a position to obtain a better deal from Japan. In the same way that the export permit system was shown to facilitate the informal implementation of cartelization policy, so does a strong industry body, especially one explicitly formulated to discuss such matters as pricing output and marketing strategy. Therefore, the ACA market study groups were revealed to be a potentially important institutional arrangement for instituting more rigorous anti-oligopsony policies.

The concept of a National Marketing Authority is not expected to receive serious attention in the foreseeable future; nevertheless, the associated debate is seen to play a part in shaping the development of Australia's anti-oligopsony policy. It

³⁵ Donald W. Barnett, "Rail Freight and the Cost of Australian and North American Export Coal".

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helps the government convince the anti-interventionists of the political necessity for moderate regulatory policies. Furthermore, the NMA proposal focuses the policy debate on the bargaining issue and the use of non-competitive purchasing techniques by Australia's customers; this helps call into question the wisdom of sending uncoordinated sellers to face collectively organized buyers. Nevertheless, the NMA proposal is beset by political acceptability problems, particularly its implicit rejection, in part, of managerial independence and private property rights.

The export duty and the freight rate tax were seen to be conceptually powerful instruments for capturing rents from both consumers and producers. Therein lie their strengths and weaknesses. It is a useful part of an anti-oligopsony policy in that it is expected to extract rent from consumers. However, by also taxing producers, it generates severe hostility from both the mine operators and other levels of government. The latter follows from the fact that rents appropriated by one level of government generally lead to declining receipts for others and, given the non-neutral nature of both schemes considered herein, a reduction in the general level of mining activity. The distributional consequences of most anti-oligoposony policies are important to keep in mind when evaluating the acceptability of various policy options.

Before closing, it must be stressed that this analysis should not be seen to suggest that neutrality is an irrelevant factor in tax or general policy design. Instead, it is intended to draw the readers attention to the possibility that the market may be severely distorted to start with due to the presence of oligopsony. In such an environment, welfare maximization does not necessarily accrue from the imposition of neutral policies - they may generate inferior solutions to those forthcoming from distortionary policies which work at cross purposes to the initial distortion.

In this chapter, I have focused exclusively on the Australian debate. Now, let us turn our attention to Canada. I shall attempt to determine if the Australian experience has relevance for Canada, and also explore other options which may be appropriate for adoption.

8. The Canadian Policy Debate

Introduction

In contrast to the Australian policy debate, the Canadian discussion of the ramifications of the Japanese coking coal procurement system has been less intense, more recent, and more parochial. Indeed, virtually all of the Canadian-based dialogue can be traced, in one way or another, to the massive northeastern British Columbia (NEBC) project. More specifically, the role of the JSM and the underlying structure of the demand side of the coking coal market only started to receive serious scrutiny in the 1983-84 period. This response was triggered by widespread speculation that the northeast coal project was unlikely to be profitable for some time,¹ if ever, and that the public sector's investment of approximately \$C1.5 billion was at risk.

In this chapter I shall attempt to outline the nature of the Canadian policy debate with respect to alleged imperfections on the demand side of the coking coal market. This is followed by a brief assessment of the anti-oligopsonistic tactics available to Canada and its producers, and a discussion of the probable outcome of the controversy.

Literature Review

As noted above, virtually all of the serious work on the marketing of western Canadian coking coal is related in one way or another to the massive northeastern British Columbia coal project.² This scheme, which required an investment in excess of \$C2.5 billion,

¹ For example, see G. Carter, *Metallurgical Coal: British Columbia's Panacea or Achilles Heel*, Research Report, Midland Doherty, Toronto, 1984.

² A good discussion of the Northeastern British Columbia project can be found in W.H. Malkinson and H. Wakabayashi, "North East Coal Development:

of which the public purse contributed over \$C1.5 billion, resulted in the construction of two mines (Quintette and Bullmoose) with a combined productive capacity of 6.7 mtpa of coking coal, a new rail and port system, and a new townsite. In many ways, it is a classic example of the Japanese procurement system in action: the project entails long-term contracts, soft loans, equity participation, and a new logistical system. In addition, the project is an inherent part of the "over-contracting" debate, since the Quintette and Bullmoose mines are among the most recent projects to receive support from the Japanese steel mills. Furthermore, the ink was barely dry on the contracts, which were signed in January 1981, when the future demand estimates for coking coal started their precipitous decline.

The bad luck continued even after the commencement of production. The Quintette mine, the largest operation, with a long-term JSM contract for 5 mtpa, suffered production and quality problems. Furthermore, shortly after commencing mining activities, both mines faced pressure to accept lower prices, notwithstanding the existence of long-term contracts. All of these events served to raise public concern about the wisdom of the project, especially with respect to the publicly financed infrastructure investments. Without going into further detail, let it be said that, despite receiving a price approximately 30 percent greater than that received by traditional producers and full up-take of contracted tonnage, the Quintette mine has continued to flounder. Indeed, Denison Mines, 50-percent owners of the operation, recently wrote off its entire equity holdings of \$241 million in the project.³ The other mine, Bullmoose, has generated a small accounting profit, but this result is largely attributable to the favourable price and tonnage treatment it has received from the Japanese steel mills.

The relevant literature on the Canadian scene can best be addressed by dividing it into two sets: material written before 1981 and material written thereafter. This date coincides with both the signing of the northeast coal project agreements and the dramatic

³ See "Denison: Forced Write-Off", *Mining Journal*, vol. 306, no. 7849, 24 January 1986, p. 67; and "Denison: Write-Offs Mask an Otherwise Good Performance", *Mining Journal*, vol. 306, no. 7851, 7 February 1986, pp.

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drop in forecasted coking coal requirements. One additional qualification is in order: I have restricted the review to those Canadian-based studies which discuss the demand side of the coking coal market.

Pre-1981 Studies

The pioneering work by D'Cruz⁴ has been referenced several times in previous chapters; indeed, it is still the most comprehensive and rigorous study available on the institutional and historical aspects of the JSM's procurement system. However, D'Cruz also attempted to test empirically for the presence of oligopsonistic behaviour on the part of the JSM over the 1970-77 period. Although this section is not up to the standards of the remainder of his study, his findings suggest that the prices paid by the JSM for Canadian and Australian coal are inconsistent with prices that would have been forthcoming from a competitive market. Although he found evidence of price discrimination between countries, he found much weaker, almost negligible, evidence of such behaviour within nation states:

The coefficients for the country dummies are also significant. These coefficients are all negative, indicating that suppliers from these countries received lower prices than U.S. suppliers. A clear pattern of monopsonistic price discrimination among suppliers can be seen in this model; this pattern is found in all the subsequent models discussed below. It appears as though it is a fundamental characteristics of the system for procurement of coking coal by the Japanese steel industry.⁵

⁴ Joseph R. D'Cruz, "Quasi-Integration in Raw Material Markets: The Overseas Procurement of Coking Coal by the Japanese Steel Industry", unpublished Ph.D. dissertation, Harvard University, 1979.

The impact of quasi integration linkages on supplier prices was small, and considerably less than the impact of factors relating to the quality of coal and the country of origin.⁶

D'Cruz's study is important because it provides evidence that information was available to Canadian decision-makers prior to the signing of the NEBC agreement suggesting that the JSM engaged in practices which operate against Canada's long-run interests. On the other hand, his work can be criticized for failing to properly account for quality differences between coal types. For example, D'Cruz provides a crude adjustment for fixed carbon content, but fails to consider fluidity and swelling characteristics. This misspecification could account for his inter-country price discrimination findings.

Another study published in 1980 presented different results. Based on an elementary econometric analysis of cross-sectional data for the year 1977, Sivertson and Kittredge⁷ found no evidence to support the allegation that the JSM practices price discrimination between its major suppliers:

This paper produces evidence that Canada's coals are not underpriced in respect to U.S. and world markets. The conclusion is drawn that British Columbia and Alberta metallurgical coals receive prices that are equal to prices known to be competitively determined.⁸

However, in other parts of the study, the authors provide some circumstantial evidence in support of oligopsonistic practices. For example, a positive relationship was found between cost of production and the price paid by the JSM:

It will be recalled that a positive sign for this variable also could be associated with a price discriminating

⁶ Ibid., p. 271.

⁷ Peter Kittredge and Lorne Sivertson, "Competition and Canadian Coal Prices in the Japanese Coking Coal Market", CIM Bulletin, September 1980, pp. 100-109.

⁸ Ibid., p. 100.

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monopsonist or oligopsonist. However, the analysis which follows strongly indicates a market adjustment/diversity of supply explanation is the appropriate explanation.⁹

Perhaps inadvertently, the authors provide additional support for the presence of oligopsony in the Japanese market:

With the exception of full market equilibrium, one may expect to encounter variations in FOB port prices that arise from differences in supply costs caused by differences in labour productivity, tax regimes, health and safety legislation, etc. In a frictionless market, these price differentials could not exist, as a purchaser would immediately shift his purchases away from a higher- to a lower-priced coal, all other factors being equal. In the coal market, where long-term coal contracts exist and transaction costs can be significant, adjustment lags so that similar coals can, at any particular time, sell at somewhat different prices. One may therefore observe a higher price associated with a higher-cost coal. This result is contrary to the competitive prediction, but is simply the result of friction in the market place.¹⁰

Could this friction be due to oligopsonistic practices by the consumer? Indeed, the authors admit that their study does not test for uniform price discrimination by the JSM, but only differential activity:

It is important to realize, however, that these equations do not predict the level of prices in the Japanese market. They only predict what prices will be within an over-all price level, not the price level itself.¹¹

⁹ *Ibid.*, p. 107.

¹⁰ *Ibid.*, p. 108.

¹¹ *Ibid.*, p. 108.

The D'Cruz and Sivertson/Kittredge studies yield conflicting evidence. Although D'Cruz's work has the advantage of employing time-series data and a more sophisticated model of the world coking coal trade, it could benefit from the rigorous coal quality adjustment factors developed by Sivertson/Kittredge. In summary, D'Cruz has employed a superior model for testing for the presence of oligopsony - the question under review herein. On the other hand, the Sivertson/Kittredge model is somewhat inappropriate for this task but is a highly sophisticated price prediction model.

Despite my criticism of some aspects of these pioneering studies, it must be acknowledged that it is extremely difficult to test for the presence of oligopsony since the data is contaminated by a host of factors operating simultaneously on the market: the rigidities of long-term contracts, the payment of security-of-supply premiums, the effects of strikes, the impact of equity investments. Indeed, it may be for these very reasons that all of the publicly available Canadian-based studies released since then have been of the impressionistic value-laden variety.

In his April 1980 study for the Council of Mayors of South-eastern British Columbia, Halvorson¹² predicted many of the events which have since occurred in the Canadian coking coal industry. Specifically, he publicly criticized the wisdom of launching the NEBC project long before it became fashionable to do so. For example, Halvorson stated:

The only justification for the major proposed development in the Northeast this decade is if a very rapid growth in B.C. coking coal markets should develop. There appears no indication that such will occur.¹³

The fear exists that a depressed economy could once more result should the fine-tuned supply/demand balances in B.C.'s coal markets be tampered with.¹⁴

¹² H.N. Halvorson, "New Coal Production from Southeastern B.C. Compared with Proposed Northeastern B.C. Development", unpublished study prepared for the Council of Mayors of Southeastern British Columbia, June 1980.

¹³ *Ibid.*, p. iii.

¹⁴ *Ibid.*, p. vi.

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However, they fear government subsidies might bring on too much coal too quickly.¹⁵

Historically the steel industries in these countries, and in Japan, have erred on the high side.¹⁶

In its simplest terms, the Japanese strategy on coal imports appears to be one of maximizing security of supply while minimizing cost. Both these objectives can best be achieved by encouraging as many competitive sources as possible.¹⁷

In summary, it can be said that Halvorson drew attention to the Japanese steel mills procurement strategy, especially their collective bargaining activities, their use of long-term contracts as a policy instrument for reasons beyond mere security-of-supply considerations, and the linkages between production activities in the northeast and southeast of British Columbia. In other words, he drew attention to the fact that the markets were highly imperfect and that Canada, although a small producer, could not take price and quantity as being exogenously determined. Halvorson presented a readable, pragmatic view which should have encouraged the "experts" to initiate further study of selected issues. Instead, Halvorson's immediate fate was to be ignored by most and ridiculed by others as being a lackey of the southeast B.C. producers. However, history has provided him with a measure of vindication. Despite these insights, the study can be criticized for being somewhat impressionistic and, at times, one-sided in favour of south-east activities.

¹⁵ *Ibid.*, p. 1-13.

¹⁶ *Ibid.*, p. 1-15.

¹⁷ *Ibid.*, p. 2-1.

Post-1981 Studies

It is of importance to note that three of the four studies to be reviewed in this subsection are M.A. dissertations from the University of British Columbia. This reinforces the prior statement that the subject has largely been of interest to B.C.-based researchers. Gibb's work focuses on the relationships between the Japanese steel mills and the Japanese government.¹⁸ She provides several arguments against viewing the JSM as a monolith. Furthermore, she presents a useful, if somewhat one-sided, criticism of the conspiracy theory with respect to deliberate over-capacity generation. Nevertheless, Gibb does acknowledge that the JSM exercise substantial power over the coking coal market:

The emergence of buyers' groups in Japan can be seen as a pragmatic and highly effective response to the challenge posed by the problem of obtaining raw materials in a highly competitive international market. The existence of such a "cartel" may grate against the philosophical framework of some suppliers and competitors, but fits in easily with the more relaxed approach to anti trust in Japan.¹⁹

A monopsonist buyer, the steel mills are able to play one supplier against another. In the current situation of an oversupply of coal, Japanese buyers can make price cuts and volume reductions negotiated with South Africa the basis for negotiation for supplies from other countries.²⁰

In another UBC Master's dissertation, Maund²¹ compares the merits of the JSM's procurement strategy and the more traditional

18 Heather R. Gibb, "Re-examining 'Japan Incorporated': Japanese Coal Procurement and Western Canadian Coal", unpublished M.A. dissertation, University of British Columbia, October 1984.

19 *Ibid.*, p. 17.

20 *Ibid.*, pp. 15-16.

21 Jacqueline K. Maund, "The Implications of the Japanese Resource Procurement Strategy for Staple Resource Regions: An Examination of Coal Mining

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integration model. She focused on the forward and backward linkages provided by each model. Her findings are somewhat inconclusive, although she does suggest that the benefits of the Japanese "develop and import" strategy over the American integration model may be much more modest than is frequently promulgated. For example:

Finally, there would be less likelihood of transfer pricing occurring under the Japanese strategy for the instances of Japanese equity participation are few and always limited to minority equity holdings. However, the Japanese consortium purchasing resources represents all the major companies in the industry using that resource and would thus be negotiating from a strong united position with a number of fragmented resource sellers around the world. It is suggested that this negotiating position would allow a consortium a great deal of power in obtaining the price and quantities desired from each seller. This in turn may result in less than equitable returns for each region's resource.²²

Maund suggests that the problems besetting the demand side of the market are so severe that Canadian policy makers should consider either the adoption of a resource cartel, presumably operated by the producers themselves, or a government controlled marketing board.²³ She appears to favour the latter. Her rationale for this policy is as follows:

A second option would be to establish a government marketing board to oversee developments in the staple industry and purchase the output from each producer to be re-sold to the Japanese.... The aim would be to counter the monopoly pricing practised by the Japanese and attempt to achieve a better return for our resources. Government involvement in resource marketing would provide sellers

in *Southeastern B.C.*, unpublished M.A. dissertation, University of British Columbia, April 1984.

²² *Ibid.*, p. 43.

²³ *Ibid.*, pp. 127-128.

with greater leverage in bargaining and help raise such trade issues to a level of international diplomacy. This would force the Japanese to be more cautious in overextending contracts and then cutting back on them. The possibility of greater communication with competing resource sellers located in other countries should also be considered in this effort to achieve greater co-ordination on the supply side.²⁴

Unfortunately, Maund does not discuss the organizational problems likely to be encountered in setting up such a scheme. In addition, she does not discuss the potential Japanese reaction, especially with respect to supply diversion and substitution effects. Nevertheless, she has clearly identified problem areas and suggested some policy options which at least warrant further study.

In another UBC study, Catliff²⁵ takes a position somewhat between Gibb's anti-conspiracy views and Maund's advocacy of explicit cartelization policies. He suggests that the steel mills do indeed exercise substantial market power over the coking coal trade.²⁶ He also suggests that the "Japanese Inc." model is highly relevant to the coking coal trade. However, Catliff rejects the deliberate over-contracting hypothesis.²⁷ In a set of arguments somewhat similar to those employed herein, he sets about to show that it would not have been in the JSM's best interests to have deliberately set out to increase supply for their own sake. He attributes the JSM's current good fortune to fortuitous events such as the market turndown of the early 1980s. Unfortunately, Catliff, in this otherwise excellent study, does not attempt to provide a policy prescription for the demand-side imperfections which he

²⁴ *Ibid.*, p. 127.

²⁵ Christopher E. Catliff, "Japan's Government and Steel Industry Policies Towards Coking Coal Procurement: The Implications of Industrial Restructuring for the Northeast Coal Project", unpublished M.A. dissertation, University of British Columbia, December 1985.

²⁶ *Ibid.*, p. 21.

²⁷ *Ibid.*, p. 93.

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acknowledges to be pervasive and damaging to Canada's economic welfare.

The academic studies by Gibb, Maund and Catliff have had little impact on the Canadian policy debate. This is the usual fate of dissertations, but given the policy relevance of the subject under assessment, it is an unfortunate outcome. Each study provides useful information and insights into the broad issue of coal marketing and the impact of collective procurement strategies. Although the findings differ dramatically with respect to motive and solutions, they all suggest serious problems on the demand side of the coking coal market.

The final coal-specific study to be addressed herein has had a impact on the Canadian policy scene. In her study of the western Canadian coal industry for the Economic Council of Canada, Dyack²⁸ also found that the industry's major problems lay on the demand side of the market, especially in the oligopsonistic practices of the Japanese steel industry. These initiatives, she points out, can lead to most of the benefits from coal extraction flowing to the buyers. The producers can be left with substantially lower benefits than would accrue to them if the market for coking coal were truly competitive. Dyack states her case clearly and forcefully:

The market structure of the coal industry provides our main area of concern ... The problem in the west is not availability of supply but management of the resources in light of market conditions and with recognition of price effects of different paths of behaviour. Besides the simple impact on price due to supply expansion, the West faces concentration on the demand side of the market. If the West continues along its projected path, market-power will remain nested predominantly in the major export market - Japan.²⁹

²⁸ Brenda J. Dyack, "Western Canada's Coal Industry: Status and Potential", Discussion Paper No. 278 (Ottawa: Economic Council of Canada, 1985).

²⁹ *Ibid.*, p. vii-2.

In order to combat this problem, Dyack, somewhat reluctantly advocated the use of collective selling practices:

There is little that coal producers can do to change the main characteristics of the market they face given the smaller size of markets in other Pacific Rim countries, the lower cost competition in Australia and South Africa and the market barriers imposed by sheer distance to other markets. Although further concentration of power on either side of the market is generally an unfavourable prospect at a time when the desired movement is to freer, more competitive international trade, it may be the only effective solution to combating the potential price losses imposed by powerful buyers is a reciprocal unified supply front. Existing producers in the west may find that it is to their mutual advantage to share information and co-ordinate their actions to prevent further losses. A government role is indicated here for both the provinces, as owners of the resource and the federal government in its control over international trade.³⁰

In this section I have attempted to provide the reader with an overview of some of the Canadian-based research into the issue which is central to this study: the ramifications of the Japanese coking coal procurement system on the economic welfare of suppliers. The findings suggest support for the proposition that, from a Canadian perspective, the Japanese steel mills exercise an unhealthy degree of control over the market. However, the reasons provided to explain the evolution of this situation and the policy prescriptions designed to alleviate its effects, vary widely. Furthermore, those researchers suggesting collective selling practices have failed to explore the problems which must be overcome if such schemes are to stand the test of time. Let us now look at the Canadian-based discussion of these issues in the broader political context.

³⁰ *Ibid.*, p. vii-3.

The Current Policy Debate

The issue of excessive market power by consumers is now starting to enter the formal Canadian policy arena. It is also starting to move from being seen as a purely regional issue to one of national significance. For example, in its November 1984 study of western Canadian economic prospects, the Economic Council of Canada (ECC), undoubtedly relying heavily on Dyack's work, stated:

In the case of coal, where market power exists on the demand side rather than the supply side, the issues are necessarily different. If the market continues along its projected path, market power will remain nested predominantly in the major export market - namely, Japan....The West's overdependence on one market leaves it vulnerable to real income losses through potential price and volume cutbacks. Not much can be done about this, but we could place more of the risk on those with the most incentive to recognize it.³¹

Note that that the ECC stopped short of recommending a specific form of anti-oligopsony policy.

In September 1985 two important events took place which are germane to this study. First, in a widely over-looked newspaper article, the then Minister of State for Mines, the Hon. Robert Layton, discussed the future prospects of the western coal industry:

Layton said the federal government would also help producers market coal in international markets and supports a collective approach that would see coal companies negotiating as one rather than competing against each other in overseas markets...Canadian potash producers have an association that markets for the industry.³²

³¹ Economic Council of Canada, Western Transition (Ottawa: Supply and Services Canada, 1984), p. 112.

³² "Devaluation Urged to Spur Coal Exports", Vancouver Sun, 17 September 1985, p. (D1).

This statement is important for a number of reasons. It indicates that the federal government has recognized that the market for coking coal is highly imperfect. Furthermore, the promulgation of collective marketing is somewhat unusual for a minister of a government which widely espouses the virtues of unfettered markets. In addition, advocating an anti-oligopsony policy based on a privately-owned export consortium, as opposed to a government controlled marketing arrangement, is a step that warrants detailed study. This policy option is consistent with the Mulroney government's pro-private sector orientation, yet it acknowledges that individual action is not always superior to group action. Unfortunately, Layton's views, as expressed in the above referenced article, have not received the attention they deserve.

The final document to be discussed was released in the latter part of September 1985 - the long awaited report of the Royal Commission on the Economic Union and Development Prospects for Canada,³³ (otherwise known as the Macdonald Report). The Commissioners strongly advocated increased reliance on private ownership and the competitive market mechanism as the best policy for Canada to adopt in order to maximize her future economic wealth. Nevertheless, the Macdonald Commission adopted a rather startling position with respect to the western Canadian coal industry:

Japan is the nation with the largest appetite for imported coal. Canada holds a 15 per cent share of the Japanese market for metallurgical coal, and opinions vary as to whether the Japanese portion of Canadian exports will grow or decline. The future Japanese demand for coal imports from all countries is also uncertain. It may be necessary for Canadian producers and provincial governments to develop a united front in negotiating with Japan as their Australian counterparts are now doing. Japan is financing new mines in northeastern British Columbia and other places around the world. These developments are

³³ Royal Commission on the Economic Union and Development Prospects for Canada, Report, Volume Two (Ottawa: Supply and Services Canada).

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depressing the prices which all producers can get for their exports to that country.³⁴

This quote clearly reveals the concerns now prevailing in Canada about the demand side of the coking coal market, particularly the role of the Japanese steel industry's procurement policies. Aside from the fact that the reference to Australian activities is somewhat erroneous, the quotation can undoubtedly be construed as advocating of collective action; furthermore, it indicates an awareness of the often-forgotten fact that "development for development's sake" may yield deleterious outcomes for Canada and its coking coal producers.

In this section I have discussed the evolution of the Canadian policy debate. It has been shown to have been, until recently, based primarily in British Columbia. However, even there the debate has focused largely on the wisdom of the NEBC project itself, rather than the broader issue of oligopsony. Let us now proceed to investigate the nature of the anti-oligopsony policy options open to Canadian producers and governments and to speculate on the future course of this debate.

Policy Options

If the Japanese coking coal market is indeed characterized by oligopsonistic practices, it stands to reason that Canada should seriously investigate the benefits and costs of pursuing collective selling practices. However, it is highly unlikely that Canada acting alone could affect real change in the market. That is, Canada possesses only 25 percent of the Japanese market and approximately 15 percent of the global coking coal seaborne trade. Furthermore, Canada is highly dependent on the Japanese market, currently exporting approximately 75 percent of her coking coal exports to Japan; the corresponding figure for exports to the total Pacific Rim market is in the order of 90 percent. This suggests that the prevailing bargaining relationship favours the JSM: Japan can do without Canada much more easily, at least in the short run,

³⁴ *Ibid.*, p. 473.

than Canada can do without Japan. These bargaining problems are exacerbated by the fact that Canadian producers are higher cost than their Australian counterparts. Thus, if Canada were suddenly to cut off supplies, or even be perceived to be contemplating doing so, Japan could readily obtain alternative supplies from Australia and the USA without increasing its overall procurement costs.

This discussion suggests the obvious: Canada, acting alone, can do little to influence the world market in the medium to longer run. However, this is not the same thing as saying that it should not consider collective action. Indeed, the theoretical advantages of collective action might still be captured if Canada were to act in concert with Australia and others in the Pacific Rim market. By jointly coordinating their bargaining and capacity decisions, it is possible that countervailing power could be generated to offset the market power currently wielded by the Japanese steel mills.

However, there are serious problems with this approach. First, it should be stated that the ideal solution for Canada is for Australia to adopt aggressive collective selling practices, and for Canada to act as a free rider. However, this is highly unlikely to occur; although Canada is not important enough to initiate such action on its own, it is too powerful to be left out of any producer arrangement. As a member of the competitive fringe, it is well placed to increase output substantially, especially at prices modestly in excess of prevailing levels. Indeed, this appears to be the unstated rationale of many Canadian government and industry officials when arguing against collective action. They appear to believe that, by offering the Japanese a secure source of supply, Canada can eventually undermine Australia's cost advantage. According to this school of thought, Canada has the infrastructure, proven ore reserves, and sufficient unused capacity, to be able to dramatically increase its share of the Pacific Rim and global markets. However, given Canada's cost structure, both from a f.o.b.t. and a c.i.f. perspective, it cannot compete on the basis of price, but it can on the basis of security of supply. Hence, the critics suggest that it is important to remain aloof from any supply management scheme.

Before advocating a collective solution, it is important to ask a number of additional questions. Will the benefits exceed the

costs, and, if so, by how much? What organizational form is politically and administratively feasible? The answer to the first question is largely beyond the scope of this study. However, it would appear, on the basis of casual empiricism, that net benefits are available for appropriation in the short to medium run from the introduction of an effective resource management scheme. On the other hand, as discussed in chapters 4 and 5, the ability of the JSM to adopt coking-coal-saving technologies severely restrains the potential long-term benefits. Indeed, it is possible to argue that the expectation of a major increase in the price of coking coal, relative to alternatives, would unleash virtually irreversible forces which would hasten the inexorable decline of the coking coal trade. Nevertheless, it may make sense to capture increased benefits in the short to medium term and suffer losses in the longer term - especially if there is a reasonable expectation that the market will decline independently of the imposition of a supply management scheme.

If the benefits of collective action are found to exceed the costs, what form of supply management scheme would be politically feasible in the prevailing Canadian environment?³⁵ Note that if Australia and Canada cooperate, they must adopt compatible policies.

Without getting into detail, let it be said that, for political reasons, a national marketing authority is unlikely to be an acceptable mode of operation. This observation is made with full knowledge of the fact that the B.C. NDP party has, as part of its platform, recommended that a provincial marketing authority be set up to handle coking coal sales. Although they may attempt to launch such a scheme if they attain power, success would require support from Alberta, and this is unlikely to be obtained. Similarly, optimal tax and subsidy options are likely to be rejected, once again, for political reasons. Export taxes are a federal responsibility, and any attempt to use this vehicle would be resisted by the producing provinces and the producers, all of whom would be

³⁵ The Mulroney government has consistently espoused a strong pro-private sector, pro-competitive market philosophy. Aside from the rhetoric, its policy initiatives also point in this direction: for example, its activities in the area of privatization, deregulation of the transportation system, and its strong promulgation of freer trade with the USA.

worse off after the imposition of such a levy. Of course, a proper redistribution mechanism could alleviate these concerns but, given the reality of Canadian federalism, this solution is also highly unlikely.

The basic Australian instrument, the export permit system, is technically feasible under current Canadian legislation.³⁶ Indeed, the technique has a long history in Canada, although it has not occupied a high profile position. However, export permits have generally been applied to mineral commodities for security of supply and for value-added reasons. For example, restrictions on uranium³⁷ fall into the former group, and those on copper concentrate fall into the latter category. It would be difficult to justify export controls for bargaining and pricing reasons, even though they might be technically valid. Indeed, given the current political initiatives to remove barriers to trade and to deregulate the economy, it is difficult to believe that the federal government would consider employing this vehicle as the foundation of an anti-oligopsony policy.

The most likely candidate is the "export consortia" approach. In Canadian parlance, the term refers to a group of producers, normally privately owned, who band together to sell collectively in foreign markets. They are given protection from prosecution under the nation's restraint of trade legislation, the Competition Act, providing the arrangement meets certain conditions. The scheme has further appeal in that both the Canadian potash and sulphur producers have set up such organizations to handle non-North American sales. For example, the Canadian Potash Export Association (Canpotex), in 1985, handled approximately 80 percent of Canadian exports to off-shore markets; the corresponding figure for the Pacific Rim markets is 100 percent.

A coking coal export consortium, referred hereafter as "Cancoalex", could arrange and sign all sales contracts for member companies. Furthermore, it might operate the transportation

³⁶ See Export and Import Permits Act R.S.C., 1954 and the related Regulations Respecting Export Permits.

³⁷ Strictly speaking, the exportation of uranium products is controlled under separate legislation: the Atomic Energy Control Act R.S.C., 1952, and the Atomic Energy Control Regulations.

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system from the mine to the customer or export port, as does Canpotex. The scheme has appeal in that it helps prevent the worst abuses of the JSM's bargaining strategy: the games-playing activities during the annual bargaining sessions. Furthermore, and perhaps the most important advantage of all, it facilitates collective action with Australia and other producers without necessitating the formulation of an explicit agreement. For example, in a tacit arrangement with Australian producers, backed up by the powers of the Australian export permit system, Cancoalex could agree to follow a given pricing and tonnage policy and, equally important, agree to follow a mutually beneficial bargaining timetable.

In summary, the Cancoalex model has some appeal. It is privately owned and controlled and thus politically acceptable in the current political environment; it facilitates collective action both domestically and internationally; and it does so in a low key, informal fashion which reduces the probability of compromising the government of its broader trade objectives.

Unfortunately, the scenario painted above is unlikely to occur. First, the relative success of Canpotex and Cansulex is probably due to the dominant market position these two commodities enjoy - Canada is a low-cost producer of both, enjoying a large market share. In other words, the two organizations bargain from a position of strength. Furthermore, sulphur and potash are relatively uniform products and the output of any one producer is virtually interchangeable with any other. This is not the case for coal, although Canadian output is much closer to being homogeneous than, say, the output from Australia or the USA.

Perhaps the greatest impediment to collective action of the Cancoalex variety is the lack of cohesiveness on the part of Canadian producers. Although relatively few in number, the seven Canada coking coal producers are bitterly divided. As noted in chapters 2 and 4, the new producers, especially those in the northeastern British Columbia, have received favourable treatment; this has upset the traditional producers who perceive themselves to be bearing the brunt of the cost of past investment mistakes. On the other hand, the new producers can point to "bail-out" activities in the early 1970s which saved one traditional

producer.³⁸ In particular, the new producers see any attempt to bargain collectively as a method of increasing prices for the traditional producers and reducing prices for themselves. Given that the potential membership is split almost evenly between the new and the old producers, it almost defies logic to suggest that they could agree to a common pricing and output policy. They are too dissimilar to expect this to occur without some degree of government coercion.

Two possible events could occur which might alter this conclusion. First, if the NDP attains power in B.C., it is conceivable that a compromise solution between their platform commitment to a provincial marketing authority and the producers desire for independence could be some form of producer-owned collective marketing arrangement. Canpotex, for example, was formed at the strong encouragement of the Saskatchewan government in order to increase the industry's bargaining power in international markets. Nevertheless, without Alberta's cooperation, it is not clear how far such a policy could proceed. Second, if all but one or two members were willing to join such a venture, then it is possible that, with active support of the remaining producers and the provinces involved, government policies could be used to strongly encourage the reticent to join. For example, the federal export powers could serve such a function. Under the prevailing system, it is possible for the federal government to place coking coal on the list of restricted goods and to then grant, *de facto*, automatic approval to all Cancoalex contracts;³⁹ all others might require a rather time-consuming inflexible review process. This could serve to drive the recalcitrant into the fold.

38 For a discussion of the Japanese rescue package which bailed out the Balmar operation of Kaiser Resources (now Westar Mining) in 1973, see Jacqueline K. Maund, "The Implications of the Japanese Resource Procurement Strategy for Staple Resource Regions: An Examination of Coal Mining in Southeastern B.C.", pp. 8.

39 For example, under the authority of the Export and Import Permits Act, the Minister of External Affairs may delegate his powers with respect to the issuing of licences. This feature of the act has been used to grant the CEO of the Canadian Wheat Board the authority to issue export permits for wheat shipments. Similarly, the Director General, Department of Regional and Industrial Expansion, in Vancouver, holds similar powers with respect to the exportation of "logs".

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In summary, it appears unlikely that Canadian producers and governments will adopt a collective selling approach. Fortunately, for Canada's sake, it is not entirely clear that such an approach is in the country's long-run interest. As noted above, Canada's position as a high-cost producer with few viable options places it in a potentially vulnerable position with respect to Japanese retaliation. Japan can live without Canadian coking coal, but it is unlikely that it can afford to offend Australia, which possesses large supplies of low-cost coal and other raw materials important to Japan's regional interests.

Perhaps most important of all, the often discussed issue of technological change hangs over the market. The wisdom of substantially increasing relative prices is questionable, given the apparent ability of the consumer to employ substitute materials to a large and growing degree. Although the Japanese may have overstated their ability to employ non-coking coals for bargaining reasons, it is reasonable to assume that, if coking coal prices were to rise significantly, a large scale substitution away from coking coals could easily take place within, say, five years. Therefore, price initiatives should be restrained. However, at some point the cost of collective action and the aggravation involved in operating such schemes will offset the modest gains available from a policy of price restraint.

Finally, it must be stressed that the "unrestrained price" model is not necessarily sub-optimal, even if substantial substitution is assumed to be the eventual outcome. Instead, one must estimate the incremental likelihood of substitution at various price levels and compare the short- and medium-term benefits with the incremental long-run losses. It is quite likely that, at current prices or prices required to earn a reasonable rate of return on investment, a substantial degree of substitution to non-coking coals will take place; it is the incremental substitution that must be taken into the decision-making calculus. If collective action is found to be a promising approach, then the question of appropriate organizational form should be seriously addressed.

Conclusion

This chapter has outlined the Canada policy debate with respect to the Japanese procurement system. The controversy is of a relatively recent vintage and, until quite recently, has been highly localized. The hypothetical assessment of collective options open to Canada led to the discussion of the possible advantages of privately owned and controlled export consortia. However, it appears that the likelihood of any concrete action with respect to anti-oligopsony policy is remote, primarily for reasons relating to federal/provincial relations, private sector opposition, and inter-producer conflict. Fortunately for Canadians, this apparently negative conclusion is not necessarily "bad", since it is not clear that collective action is the best policy for Canada to adopt, despite the admittedly oligopsonistic practices of the Japanese steel mills.

9. Conclusion

Introduction

The primary purpose of this study was to assess the impact of the Japanese steel mills' coordinated coking coal procurement system on suppliers in Australia and Canada, and to evaluate the policy initiatives utilized and contemplated by their respective governments. More specifically, the study explored the validity of the wide-spread allegation that the Japanese steel mills act as oligopsonists in the coking coal market. It should be noted that the study covers all relevant events up to June 1986. In this chapter, I shall review my findings and then present concluding observations.

Findings

Selected aspects of the institutional environment of the sea-borne coking coal trade were presented in chapter 2. Among the more important observations are the following. First, the market for coking coal is not promising; most forecasts suggest that world and Japanese consumption will remain static over the next decade. Second, Australia is the Japanese steel mills' dominant supplier, with Canada and the USA occupying a distant second and third position, respectively. Furthermore, it was noted that Australia is the low-cost producer and possesses the potential to supply substantially more coking coal at constant cost. Third, technological change, past, present and future, was shown to have a substantial impact on the demand for coking coal. For example, in the past, the judicious employment of blending techniques facilitated the switch from high-cost high-quality U.S. supplies to lower-cost lower-quality Canadian and Australian products; the increasing use of mini mills threatens to undermine the use of coking coal; and the substitution of weak and non-coking coals for "hard" coking coals possesses serious long-term implications for Canadian and Australian coking coal producers.

Chapters 3 and 4 contain a detailed discussion of the Japanese coking coal procurement system and an assessment of its impact on the economic welfare of suppliers. It was noted that the Japanese steel mills had little choice but to adopt the quasi-integration procurement model. For example, due to a host of political and economic constraints, Japan was unable in the 1950s and 1960s to adopt the captive mine model employed by multinational corporations. For quite different reasons, it rejected the option of relying on the spot market. Instead, the JSM adopted a middle course: the employment of a number of instruments and policies to facilitate the construction of large-scale low-cost projects by host-nation organizations which were dedicated to supplying the Japanese market.

The overall strategy consisted of two basic elements: an organizational structure and a set of policy instruments. In the former category was the important "coordinated purchasing system" through which the major steel mills first agreed upon a common set of policies, and then designated one member of the organization to act as the lead negotiator for all subsequent transactions with all supplies within a given nation. The study also reveals the nature of the role played by the Japanese government, primarily the Ministry for International Trade and Industry, and the Japanese trading houses, in the operation of the procurement system.

Some of the policy instruments employed by the Japanese steel mills in their overall procurement policy were initially discussed and assessed by D'Cruz: they include long-term contracts, soft-financing vehicles, equity participation and integrated logistical systems. In addition, based on the author's own work, it is suggested that instruments designed to foster improvements in technology, supply-side competition, and bargaining tactics should be added to the list. Each of these instruments was shown to contribute in one way or another to the JSM's overall objectives: to obtain access to stable and secure sources of supply and to minimize overall procurement costs.

It is particularly important to note that the JSM's procurement scheme appears to have defied the predictions of economic theory: it has been able, simultaneously, to achieve improvements in security of supply and raw material outlays. This outcome can be attributed primarily to the presence of excess coking coal

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capacity in a number of supplier nations. Although this in turn is due, in large part, to the unexpected collapse of the steel market, other factors may have been at work. Indeed, the resulting controversy over causes, which was treated herein as a debate between two schools of thought, the conspiratorial and anti-conspiratorial forces, failed to lead to conclusive results. Although it is impossible to prove that the steel mills deliberately set out to engineer the current situation, the underlying incentive structure suggests that it is in their interest to ensure that excess capacity plagues the coking coal industry. Indeed, it may be argued that the usual restraints against creating an over-supply situation no longer apply: the long term may no longer be as important to the JSM as it once was. It was shown that this is due to both an expected long-run decline in Japanese steel production and the ongoing adoption of coking-coal-saving technologies. Both factors weaken the validity of the suppliers' argument that, by not paying an adequate price in the present, the Japanese steel mills will have to pay substantially more in the future for its coking coal supplies.

In chapter 5 the underlying characteristics of the supply side are presented in order to answer, at least in part, the obvious question: if the situation is as desperate as suggested above, why do producers continue in the game and why don't they organize collectively to counteract the excessive market power purportedly possessed by the JSM? Without repeating the analysis, let it be said that the financial structure of modern, open-cut operations is such that variable costs are substantially less than average costs. Thus firms will continue in operation despite the continued reporting of significant accounting losses. Furthermore, the capital intensive structure of the open-cut mines means that strong incentives exist for individual producers to operate at high levels of capacity utilization. Unfortunately, if everyone tries to do so in a price-inelastic market, the only losers are the producers themselves, including those initiating the price-war. The producers' difficulties are compounded by the JSM's differential pricing and quantity policies. All of these factors serve to ensure that, once a situation of excess capacity is created, it will persist for a considerable period of time, especially if the demand side of the market is characterized by no growth. In other words, the *status quo* is unlikely to provide a solution for the producers' lament. Furthermore, as noted above, the frequently-heard plea for a reasonable

price in the present to keep prices down in the future falls on deaf-ears. This follows from the fact that additional investment may not be needed; or, if some is required, it will be at a level which is much less than that required to maintain current production levels.

Although collective action has some appeal, it was shown to be exceedingly difficult to implement, given the peculiarities of the coking coal industry. For example, strong financial incentives exist for non-Australian producers to become part of the competitive fringe. Furthermore, the heterogeneity of coal and the traditional independence of Canadian, Australian and U.S. producers operate in such a fashion as to make it difficult to formulate a united front. However, more fundamental problems exist: although the short- and perhaps medium-term price elasticity of demand may be inelastic, the corresponding longer-term statistic is probably highly elastic. In other words, steel producers possess the ability to reduce their hard coking coal requirements substantially, if encouraged to do so by rising prices. This can be done by the development of alternative sources of supply in such domains as the USSR and China, or, more likely, by utilizing increasing amounts of widely available weak and non-coking coals. In summary, the potential exists to by-pass technologies requiring coking coal utilization.

The analysis then proceeds to an investigation of the Australian policy responses to the JSM's procurement policies. The issue of oligopsony in the coking coal market has been the subject of a long-standing Australian debate. Indeed, it appears as if Australia has developed a moderately successful set of policies for curtailling the excesses of the Japanese procurement system. However, there is an obvious limit as to what Australia can do on its own. To make further progress it must either encourage others to adopt a united front, or aggressively pursue other markets in order to reduce its dependence on the Japanese market. Either response should help to weaken the JSM's long-term bargaining power.

The Canadian debate was shown to be of relatively recent origin and to have been fostered almost entirely by the north-eastern British Columbia project. Chapter 8 explored some of the policy options open to Canadian producers and governments. The most promising was seen to be the use of a privately-owned export

consortium. This approach respects commercial reality, private ownership, and provincial rights, while facilitating collective action. Nevertheless, a review of the Canadian business and political environment suggests that any form of concrete action is unlikely for the foreseeable future.

The analysis contained in chapters 7 and 8 leads to the inescapable conclusion that radical changes are unlikely to occur on the supply side of the coking coal industry in the foreseeable future. This follows from the belief that Australia is unlikely to initiate strong anti-oligopsony policies without Canada's implicit cooperation, and that Canada's assistance is unlikely to be offered.

Although this pessimistic conclusion is likely to frustrate many Australians and some Canadians, they may find some comfort in the perverse argument that "it doesn't matter any more". This argument starts from the assumption that the combination of technological change and declining demand for steel producers will result in an inexorable decay of the sea-borne coking coal trade. It then follows that aggressive supply management schemes will only hasten the inevitable.

This in turn suggests that the coal market is not the best place to introduce cartel-style activity, despite strong evidence that the demand side of the market is severely distorted. More specifically, there are too many substitutes for coking coal; the demand for its end product is weak, and not likely to increase significantly in the foreseeable future; and the prevailing excess capacity encourages individual producers and nations to attempt to improve their lot by staying outside of any prospective collective selling body. In conclusion, this study suggests that, although the coking coal market is characterized by oligopsony, the nature of the market, in particular the potential for significant technological change, virtually precludes the introduction of effective anti-oligopsony policies.

Concluding Observations

Although I have concluded that the time for effective action by coking coal suppliers is past, lessons can still be gleaned from the experience. Perhaps the most important is that more attention

must be paid by exporting nations to the demand side of the market. Since market conditions vary substantially from commodity to commodity, it stands to reason that policies should also be, to some extent, commodity specific. This is particularly important for nations which rely heavily on the market mechanism for resource allocation decisions. Although the market mechanism possess many virtues with respect to the efficient allocation of resources, it should not be followed blindly. It is relevant only if and when its underlying assumptions are found to prevail. More explicitly, if the demand side of the market is characterized by the presence of powerful oligopsonistic forces, then unorganized sellers are not apt to capture the same level of benefits as they would in a perfectly competitive market.

Unfortunately, even if this situation is recognized, it is extremely difficult for market economies to initiate appropriate policies. This is due to a variety of factors. For example, such policies are often ideologically unacceptable to the party in power. They may conflict with other objectives such as trade liberalization. Privately owned firms may be unwilling to forego the requisite independence entailed in cooperative schemes, at least until it is too late; to some extent, the latter problem is due to the fact that collective action, if undertaken by privately owned firms, is sometimes in conflict with restraint of trade or anti-monopoly laws. In addition, most collective solutions require some degree of government intervention in order, at the very least, to preclude the possibility of "free riders" undermining the scheme. Furthermore, government action is often required to provide the necessary legal protection to members and to facilitate government to government negotiations.

In conclusion, this study serves to draw attention to a policy issue which has largely escaped serious public discussion in market economies. In their increasing desire to deregulate markets and to rely on the private sector to generate growth, governments should not lose sight of the fact that some export markets may not be conducive to individual selling activities. Collective action, whether it be through privately or publicly controlled institutions, may in certain situations be the preferred strategy to follow, if market oriented economies are to maximize the economic benefits available from the exploitation of their nonrenewal resource base.

APPENDIX I

BACKGROUND INFORMATION:
COKING COAL INDUSTRY

Table 14

WORLD CRUDE STEEL PRODUCTION, SELECTED COUNTRIES: 1974-1984
(million metric tons)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Japan	117.1	102.3	107.4	102.4	102.1	111.8	111.4	101.7	99.6	97.2	105.6
South Korea	2.3	2.5	3.5	4.3	5.0	7.6	8.6	10.8	11.8	11.9	13.0
EEC	155.6	125.2	134.2	126.1	132.6	140.2	127.7	125.1	110.6	108.7	118.7
Brazil	7.5	8.3	9.2	11.2	12.1	13.9	15.3	13.2	13.0	14.7	18.4
USA	132.2	105.8	116.1	113.7	124.3	123.7	101.7	109.6	67.7	76.8	83.9
Other	295.4	302.9	304.7	317.5	340.7	349.3	351.6	347.0	342.2	353.3	368.3
Total	710.1	647.0	675.1	675.2	716.8	746.5	716.3	707.4	644.9	662.6	707.9

Source: Derived from Coal Manual (Tokyo: Tex Report, various years).

Table 15

COKE RATES, SELECTED COUNTRIES: 1963-1983

	U.S.	U.K.	Germany	France	Total EEC	Japan
1963	.676	.735	.726	.846	.769	.549
1973	.600	.576	.494	.558	.534	.438
1979	.576	.580	.502	.513	.523	.423
1980	.569	.579	.513	.519	.513	.449
1981	.550	.583	.540	.535	.533	.475
1982	.539	.570	.528	.522	.522	.479
1983	.539	.553	.523	.520	.520	.480

Source: Vincent Calarco Jr., *World Coal Outlook: A Reassessment*, Chase Manhattan, April 1985. p. 94.

Table 16

WORLD COAL RESOURCES AND RESERVES
(million metric tons coal equivalent)

	Geological Resources	Technically and Economically Recoverable Reserves
Australia	600.000	32.800
Canada	323.036	4.242
Peoples' Republic of China	1,438.045	98.883
Federal Republic of Germany	246.800	34.419
India	81.019	12.427
Poland	139.750	59.600
Republic of South Africa	72.000	43.000
United Kingdom	190.000	45.000
United States	2,570.398	166.950
Soviet Union	4,860.000	109.900
Other Countries	229,164	55.711
Total World	10.750.212	662.932

Source: Carroll L. Wilson, Coal: Bridge to the Future, Report of the World Coal Study (Cambridge, Mass.: Ballinger Publishing Company, 1980).

WORLD COAL PRODUCTION: 1976-1985^a
(million metric tons)

Calendar Year	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
USA	615.6	627.2	603.4	704.2	752.7	747.3	760.3	709.5	807.6	803.7
USSR	711.5	772.1	723.6	718.7	716.4	704.0	718.0	716.0	712.0	726.0
China	480.0	550.0	618.0	635.0	606.0	621.0	651.0	700.0	772.0	850.0
Poland	179.3	186.1	192.6	201.0	193.1	163.0	189.3	191.0	191.6	191.6
U.K.	122.2	120.7	121.7	120.6	128.2	125.3	121.4	116.1	49.3	94.0
India	100.9	110.3	101.5	103.5	109.1	122.5	131.0	134.8	145.0	145.2
West Germany	89.3	84.5	83.5	85.8	86.6	87.9	88.4	84.9	84.3	58.8
South Africa	78.9	85.4	90.4	103.7	115.1	130.4	144.2	145.8	162.0	173.1
Australia	68.2	70.8	71.8	74.8	76.6	92.1	98.2	109.5	125.9	129.3
Czechoslovakia	28.3	28.0	28.3	28.5	28.2	27.2	27.4	20.9	26.8	-
North Korea	40.0	40.0	42.0	-	-	-	-	-	-	-
France	21.9	21.3	19.7	18.6	18.1	18.6	16.9	17.0	16.6	-
Canada	25.5	28.7	30.5	33.0	36.7	40.1	42.8	44.8	57.4	60.7
Japan	18.4	18.2	19.0	17.6	18.0	17.7	17.6	17.1	16.6	-
South Korea	16.4	17.3	18.1	18.2	18.5	20.0	20.2	19.0	20.6	-
Spain	10.7	12.1	12.1	11.5	12.7	14.3	15.1	15.3	15.2	-
Belgium	7.2	7.1	6.6	6.1	6.3	6.1	6.5	6.1	6.3	-
Romania	7.1	7.4	7.4	7.5	8.1	8.3	9.7	10.6	-	-

Vietnam	5.6	6.2	6.7	-	-	-	-	-	-	-
Turkey	4.6	4.4	4.4	4.5	3.6	4.0	-	4.0	-	-
Taiwan	3.2	2.2	2.9	2.8	-	-	-	-	3.5	-
Brazil	3.3	3.9	4.3	4.6	5.2	5.5	-	6.4	-	-
Mexico	5.7	6.6	-	-	-	-	-	-	-	-
Columbia	3.6	3.8	4.2	5.0	4.9	5.5	-	-	-	-
Zimbabwe	3.6	3.0	3.1	3.2	3.1	-	-	-	-	-
Hungary	2.9	2.9	3.0	3.0	3.1	3.2	-	-	-	-
New Zealand	2.3	2.2	2.0	1.7	1.9	2.0	-	2.0	2.0	2.3
Chile	1.2	1.2	1.1	.9	.8	.8	-	.8	1.0	1.2
Total	2,657.4	2,823.6	2,821.8	914.0	2,953.1	2,967.0	3,064.9	2,899.6	-	-

Source: The data for 1976-1984 obtained from Coal Manual 1986 (Tokyo: Tex Report, 1986), p. 89; the 1985 estimates are reported in Suzan Lindsay Randle and Gerald McCloskey, Coal Manual 1985 (London: Financial Times, 1986), p. 3.

^a Includes bituminous coal, brown coal, and anthracite.

Table 18

COAL EXPORTS BY MAJOR SUPPLIERS: 1975-1984^a
(million metric tons)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
USA	60.1	54.4	49.3	36.9	59.9	83.2	102.1	96.4	70.6	73.3
Canada	11.4	11.9	12.4	14.0	13.7	15.3	15.7	16.0	17.0	25.1
USSR	26.1	26.9	26.7	25.3	24.5	23.9	21.1	21.3	23.7	22.6
Poland	38.3	38.8	39.2	40.0	41.4	30.9	15.0	28.5	35.1	43.1
Australia	29.9	34.1	36.2	38.7	40.4	42.8	51.0	49.8	60.5	75.9
South Africa	2.7	7.5	12.7	15.4	23.4	29.2	29.9	28.2	30.0	38.1
West Germany	14.7	13.0	14.6	19.0	15.6	12.3	11.2	10.2	11.0	10.4
China	n.a.	n.a.	3.0	3.0	2.0	3.2	6.1	6.5	7.0	7.0
France	0.6	0.6	0.6	0.5	0.6	0.5	0.8	0.8	0.7	0.9
Belgium/ Luxembourg	0.8	0.7	0.8	0.8	1.4	2.1	1.8	1.4	1.6	1.3
United Kingdom	2.5	1.7	2.1	2.3	2.3	1.8	8.7	7.5	6.5	2.4
Total	187.3	189.6	194.5	193.0	223.1	242.0	257.3	260.1	256.7	300.1

Source: Coal Manual 1986 (Tokyo: Tex Report, 1986), p. 89.

^a Includes bituminous coal, brown coal, and anthracite.

Table 19

WORLD COKING COAL IMPORTS, 1983-2000
(million metric tons)

	1983	Forecast				growth rate /yr % ^a
		1985	1990	1995	2000	
United States	0.0	0.0	0.0	0.0	0.0	0.0
Canada	6.3	5.4	5.3	5.3	5.0	-0.5
Western Europe	35.8	42.6	43.0	43.3	41.3	-0.2
Japan	59.7	63.2	64.0	62.6	61.6	-0.2
Other Asia	10.3	11.5	15.2	18.3	21.6	4.3
Australia/ New Zealand	0.0	0.0	0.0	0.0	0.0	0.0
Latin America	7.3	11.3	16.2	17.1	18.0	3.2
Africa/ Middle East	1.8	2.2	2.9	3.6	4.4	4.7
CPE ^b : Europe	10.9	10.4	10.5	10.3	9.9	-0.3
CPE ^b : Asia	1.2	1.6	2.4	2.9	2.9	4.0
World Total	133.3	148.3	159.3	163.5	164.5	0.7

Source: Derived from Vincent Calarco Jr., World Coal Outlook: A Reassessment, Chase Manhattan, April 1985, p. 102.

^a annual compound growth rate over the period 1985-2000.

^b Centrally planned economies.

Table 20

DISTRIBUTION OF AUSTRALIAN METALLURGICAL COAL
EXPORTS: SELECTED YEARS, 1970-84 ^a
(percent)

	1970	1972	1974	1976	1978	1980	1982	1984
Japan	90.2	86.4	78.8	78.7	73.8	76.4	69.3	62.5
South Korea	-	-	2.1	3.1	3.8	6.9	10.2	7.0
Taiwan	0.5	-	1.4	0.3	2.8	2.1	4.0	3.8
Europe	6.6	13.6	16.1	17.6	18.8	12.8	10.8	20.0
Other	3.3	0.4	1.4	0.6	0.9	1.8	5.7	6.6

Source: Derived from Table 4.

^a Totals may not add due to rounding.

Table 21

DISTRIBUTION OF CANADIAN METALLURGICAL COAL
EXPORTS: SELECTED YEARS, 1970-85 ^a
(percent)

	1970	1972	1974	1976	1978	1980	1982	1984	1985
Japan	94.0	97.7	92.6	90.1	79.8	76.4	72.3	73.0	75.5
South Korea	-	-	0.3	3.0	4.1	9.2	12.0	10.1	9.8
Taiwan	-	-	-	-	0.2	1.5	4.1	2.8	2.2
Latin America	-	1.3	0.2	0.4	4.7	5.9	2.4	5.7	5.3
Europe	3.0	0.9	3.6	6.3	10.9	5.0	7.6	5.7	5.3
Other	3.0	0.1	3.3	0.2	0.4	2.1	1.6	1.9	1.8

Source: Derived from Table 5.

^a Totals may not add due to rounding.

F.O.B. VALUE OF QUEENSLAND COAL EXPORTS, SELECTED YEARS, 1971-85 ^a
(\$A per metric ton)

	71/72	73/74	75/76	77/78	79/80	80/81	81/82	82/83	83/84	84/85
Average Value: current dollars	10.89	12.56	37.91	42.04	43.89	45.68	51.35	60.48	57.22	58.32
Average Value: 1984 constant dollars ^b	38.54	38.45	87.34	75.93	67.42	63.54	65.03	69.06	59.39	58.32
Source: Derived from Joint Coal Board, <u>Black Coal in Australia 1984-85</u> (Sydney: Joint Coal Board, 1985), p. 96.										

^a Although the data covers all export coal, Queensland's coal exports have traditionally been predominantly of the coking variety. For instance, thermal coal exports as a percentage of total exports did not exceed 1% until 1979/80; however, the corresponding figure climbed in each succeeding year to 4.8, 5.2, 6.0, 10.5 and 24.4 percent. (See Queensland Coal Board, 34th Annual Report 1985 (Brisbane: Queensland Coal Board, 1985), p. 118).

^b Deflated by the Australian C.P.I. as reported in O.E.C.D., Main Economic Indicators: Historical Statistics 1964-1983 (Paris: O.E.C.D., 1984); and O.E.C.D., Main Economics Indicators (Paris: O.E.C.D., 1986).

Table 23

F.O.B. VALUE OF CANADIAN METALLURGICAL COAL EXPORTS, SELECTED YEARS, 1970-84 ^a
 (\$ Canadian per metric ton)

	1970	1972	1974	1976	1978	1979	1980	1981	1982	1983	1984
Average Value: current dollars	6.03	11.31	23.36	47.38	53.50	59.55	61.11	67.12	68.08	71.93	76.56
Average Value: 1984 constant dollars ^b	18.61	32.21	53.04	88.51	87.24	87.89	81.35	80.36	74.48	74.24	76.56

Source: Derived from Statistics Canada, Coal Mines, Cat. No. 26-206, various years; and Department of Finance, Economic Review April 1985 (Ottawa: Supply and Services, 1985), p. 117.

^a Statistics prior to 1980 include steaming coal exports. Although the exact figures are unavailable, discussions with industry officials suggest that it is unlikely that thermal coal exports accounted for more than 5 percent of total coal exports prior to 1980.

^b Deflated by Gross National Expenditure Implicit Price Index.

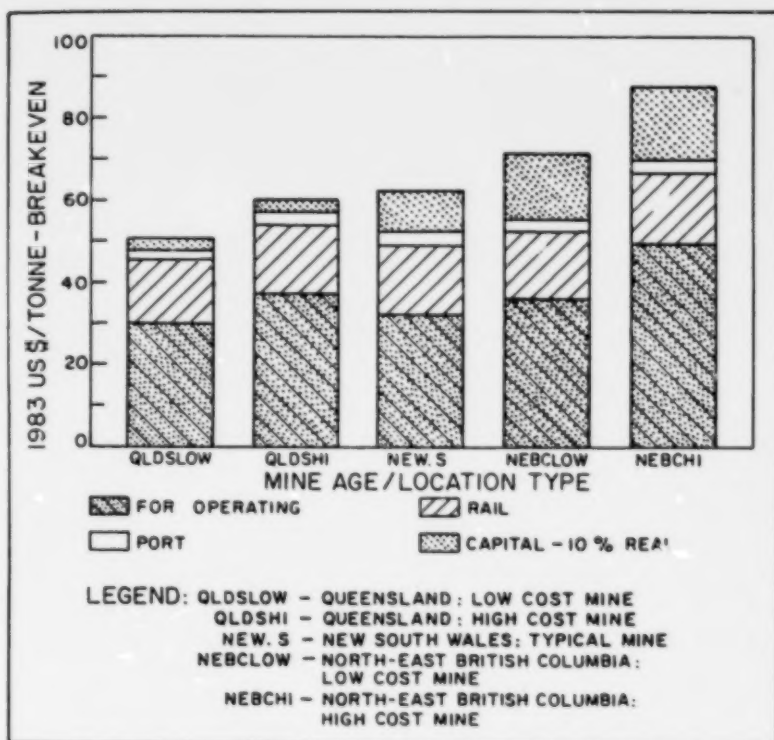


Figure 3. Comparative Cost Position of Canadian Export Coking Coal Producers

Source: D.W. Barnett, "Western Canadian Exports", in D.W. Barnett and Richard L. Gordon, ed., *Prospects for Coal in the Industrialized World: Implications for Australia*, unpublished seminar notes, 12-13 November 1984, Macquarie University, p. 6.2.8.

Table 24

AVERAGE PRICES RECEIVED BY MAJOR SUPPLIERS OF COKING COAL TO THE JAPANESE STEEL MILLS RELATIVE TO THAT RECEIVED BY AUSTRALIA: SELECTED YEARS, 1970-84
(CIF, Australian Price = 100)

	1970	1972	1974	1976	1978	1980	1981	1982	1983	1984
USA	170	165	226	136	128	134	125	123	125	121
Canada	108	121	107	117	100	103	98	107	113	119
USSR	102	112	120	107	97	97	101	103	92	89
Poland	110	140	136	119	105	100	95	-	-	-
South										
Africa	-	99	123	81	78	88	99	99	90	86
China	-	-	-	-	87	94	101	98	88	88
All JSM										
Imports	138	126	155	114	105	111	109	108	107	107

Source: Derived from Table 6.

Table 25

JAPANESE STEEL MILLS: DESIGNATED NEGOTIATORS

Country	Main Negotiator	Assisting Negotiator
Australia	Nippon	Sumitomo
Canada	N.K.K.	Kobe
U.S.S.R.	Nippon	N.K.K.
Poland	N.K.K.	-

Source: Coking Coal Manual 1977 (Tokyo: Tex Report Co. Ltd., 1977).

Table 26

RECENTLY CONSTRUCTED COKING COAL MINES IN
POSSESSION OF JAPANESE STEEL MILL CONTRACTS

Name of Mine	% Japanese Equity	Location	Date of First Shipment	Design Capacity
Bullmoose	10.0	Canada	1984	1,700,000
Greenhills	33.4	Canada	1983	1,800,000
Gregg River	40.0	Canada	1983	2,100,000
Line Creek	5.0	Canada	1983	1,000,000
Quintette	37.2	Canada	1984	5,000,000
Collinsville	-	Queensland	1984	1,000,000
Curragh	10.0	Queensland	1984	1,500,000
Oakey Creek	- ^a	Queensland	1984	1,700,000
Riverside	20.0	Queensland	1983	3,300,000
German Creek	-	Queensland	1982	3,100,000
South Yakutsk	- ^b	Russia	1985	2,000,000
Chinese	- ^c	China	1983	3,000,000
				27,000,000

Source: Chase Econometrics, cited in K.E. Baylis and Simon D. Handelsman, "International Trade in Coal", unpublished paper presented at 113th Annual Meeting, Society of Mining Engineers of AIME, Los Angeles, California, March 1984, p. 8.

^a European steel mills have equity.

^b Funded by Japanese "soft" loans.

^c Japanese funding infrastructure.

Table 27

JAPANESE COKING COAL SUPPLY/DEMAND BALANCE
(million metric tons)

	1983	1984	1985	1986	1987
<u>Supply</u>					
Coal supply	69	74	76	79	80
<u>Demand</u>					
Case I ^a					
Crude Steel	97.5	100	100	100	100
Coal Required	58-61	59-63	59-63	59-63	59-63
Surplus	8-11	11-15	13-17	16-20	17-21
Case II ^b					
Crude Steel	97.6	99.9	102.4	105.0	107.6
Coal Required	58-61	59-63	61-64	62-66	64-68
Surplus	8-11	11-15	11-16	13-17	12-16
Case III ^c					
Crude Steel	97.5	102.5	105	107.5	110
Coal Required	58-61	61-64	62-66	64-67	65-69
Surplus	8-11	10-13	10-14	12-15	11-15

Source: Australia/Japan Coal Conference, 1983.

^a After 1984 crude steel production will remain at 100 million t.

^b Crude Steel production will increase at the rate of 2.5 percent per annum after 1983.

^c After 1984 crude steel production will increase at the rate of slightly over 2.0 percent per annum.

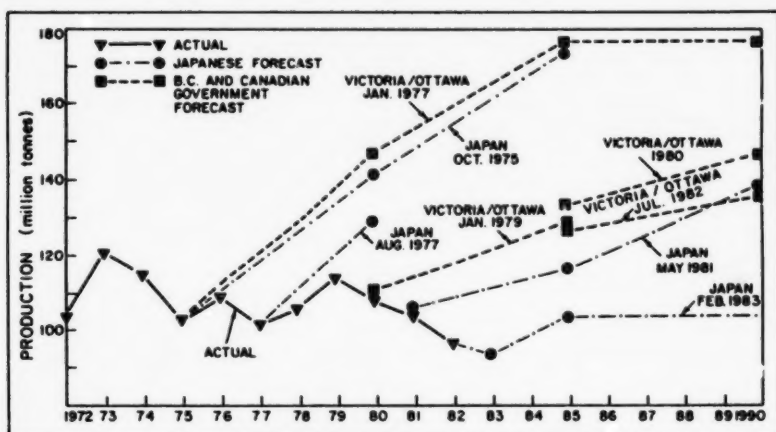


Figure 4. Comparison of Actual Japanese Crude Steel Production with Forecasts by Japanese Agencies and the B.C. and Canadian Governments (million metric tons)

Source: H.N. Halvorson, "Forecast of Coal Mining Activity to 2002", unpublished report prepared for the B.C. Hydro and Power Authority, Vancouver, March 1983, p. 28.

Table 28

SUMMARY OF CANADIAN AND AUSTRALIAN COKING COAL
WITH JAPANESE STEEL MILLS. CONTRACTS AND SHIPMENTS:
SELECTED YEARS, 1970-82

(million metric tons)

	1970	1972	1974	1976	1978	1980	1981	1982
Canada								
- contract	8.8	11.7	11.3	11.7	11.1	11.0	12.2	11.7
- shipment	4.2	8.6	9.1	10.0	10.6	10.4	9.3	8.5
- shipments as a % of contract	47.7	73.5	80.5	85.5	95.5	94.5	76.2	72.6
Australia								
- contract	17.9	24.6	27.6	31.2	29.4	31.8	35.2	35.6
- shipment	13.1	14.8	21.9	24.5	21.5	24.9	27.3	21.6
- shipments as a % of contract	73.2	72.5	79.3	78.5	73.1	78.3	77.6	60.7

Source: Derived from H.N. Halvorson, "Forecast of Coal Mining Activity to 2002", unpublished report prepared for the B.C. Hydro and Power Authority, Vancouver, March 1983, p. 25.

Table 29

ESTIMATED RAIL FREIGHT PROFITS FOR QUEENSLAND
EXPORT COAL PROJECTS ^a
(in November 1980 Australian Dollars)

Project	Major Owner	Period in which Freight Negotiations Occurred/are Occurring	Estimated Profit Component (\$/tonne)
Moura ^a	Thiess Dampier Mitsui	1960s	1.00
Blackwater ^b	Utah	1960s	1.70
South Blackwater	CSRTah	early 1970s	1.60
Goonyella	Utah	early 1970s	2.70
Peak Downs	Utah	early 1970s	2.50
Saraji	Utah	early 1970s	2.70
Oakey Creek	MIM	post-1978	2.90
German Creek	Shell	post-1978	3.40
Gregory	BHP	post-1978	3.60
Hail Creek	CSR	post-1978	5.80
Norwich Park	Utah	post-1978	7.00
Newlands	MIM	post-1978	6.20
Collinsville	MIM	post-1978	6.00

Source: G. Sturgess, "Queensland Puts the Squeeze on Coal Miners", *The Bulletin*, 25 November 1980, as cited in Roger Stuart, "Resource Development Policy: the Case of the Queensland Export Coal Industry", CRES Working Paper 1983/30, Australian National University, 1983, p. 27.

^a Gregory, Hail Creek, Newlands and Collinsville were still being negotiated at the time of the survey. The figures shown are those reportedly being asked for by Treasury. In addition, Treasury was reported to be aiming for a figure of \$6.60 for Winchester South, the negotiations for which had not then begun.

^b The original Moura and Blackwater contracts would have been renegotiated, at a higher freight rate, in the late 1970s or early 1980s.

WESTERN CANADIAN COKING COAL PRODUCERS, 1985

Mine	Operator/ Ownership	Location	Production Capacity (mts)		Start-up date	Number of Employees 1983
			Metallurgical	Thermal		
Balmar	Westar Mines Ltd. - 67% BCRIC - 33% Japanese	South-east B.C.	6.7	-	1970	1,156
Cardinal River	Luscar Ltd. - 50% Consolidation - 50% Luscar	Alberta	3.0	-	1970	370
Smokey River	McIntyre Mines Ltd. - 58% Superior Oil - 42% Public	Alberta	2.2	-	1970	324
Fording River	Fording Coal Ltd. - 60% C.P. Invest - 40% Cominco	South-east B.C.	5.0	0.2	1972	1,200
Line Creek	Crownest Resources Ltd. - 100% Shell	South-east B.C.	1.3	1.4	1982	510
Greenhills	Westar Mines Ltd. - 80% Westar (see Balmer) - 20% POPSCO (South Korean)	South-east B.C.	2.0	1.0	1982	526

Gregg River	Manalta Coal Ltd. - 60% Manalta - 40% Japanese	Alberta	2.1	0.2	1983	300 (est)
Quinette	Denison Mines Ltd. - 50% Denison Mines - 38% Japanese - 12% French	North-east B.C.	5.0	1.5	1984	1,540
Bullmoose	Teck Corporation - 51% Teck - 39% Lornex - 10% Japanese	North-east B.C.	2.5	0.6	1984	480

Source: Derived from Coal Mining in Canada: 1983, Canmet Report 83-20E (Ottawa: Supply and Services, 1984), pp. 28-33; H.N. Halvorson, "Forecast of Coal Mining Activity to 2002", unpublished report prepared for the B.C. Hydro and Power Authority, Vancouver, March 1983, p. 21; and G. Capobianco, "Canadian Coal in International Markets"; and Coal Association of Canada, 1986 Review and Directory (Calgary: Coal Association of Canada, 1986), 14-15.

Table 31

WESTERN CANADIAN EXPORT MINES: SELECTED FINANCIAL INFORMATION AS AT 31 DECEMBER 1983
(all prices in 1983 \$U.S./metric ton)

Mine	Ownership	Start-up Date	Met.Coal Output '000 M.T.	Price Met.Coal \$/T	Rail Freight \$/T	Port Charge \$/T	Mine Netback \$/T	Metallurgical-Coal Profit \$/T	Operating Cost \$/T
Balmar	Westar - BCRIC - Japan	1970	6,000	57.50	15.20	2.20	40.1	7-8	30
Greenhills	Westar	1982	1,800	71.30	16.80	3.20	51.3	5-10	29-34
Cardinal River	Luscar	1970	3,000	57.50	17.10	3.20	37.2	0-5	30-35
	Consol. Coal	1978	0		17.10	3.20			
Coal Valley Fording	Canadian Pac.	1972	5,000	57.50	16.60	2.20	38.7	-2+2	35-39
	Cominco								
McIntyre	Superior Oil Public	1970	2,000	70.00	14.10	3.20	52.7	0	50
	47%								
Gregg River	Manalta	1983	2,100	72.10	18.20	3.20	50.7	5-10?	31-36
	Japanese								
Line Creek	Crows Nest Resources	1982	1,300	59.90	15.80	3.20	40.9	3	25-27
	- Shell								
Byron Creek	Esso Canada	1970?			18.20	2.20			
	100%								

Quintette	Denison	50%	1984	5,000	80.00	17.00	3.10	59.9	0?	44?
	Japanese	38%								
	French	12%								
Bullmoose	Teck Co.	51%	1984	1,700	80.00	20.00	3.10	56.9	0?	43?
	Lornex	39%								
	Nissho-Iwai	10%								
Obed Marsh	Union Oil	50%	1984/85			17.10	3.20			
	Norcan	40%								
	Rescon	10%								

Cost of Mine is Estimated at US\$240 million,

Capital Recovery @ 10% Real is \$11.5/Saleable tonne.

27,900

Source: D.W. Barnett, "Western Canadian Exports", in D.W. Barnett and Richard L. Gordon, ed., Prospects for Coal in the Industrialized World: Implications for Australia unpublished seminar notes, 12-13 November 1984, Macquarie University, p. 6.2.5.

The Author

David Anderson was born in Hawkesbury, Ontario. He holds the degrees of BA from the University of Waterloo, MA from the University of Guelph, and Ph.D. from Queen's University, all in Economics. In 1972 he joined the Faculty of Administration of the University of Regina. On two occasions Dr. Anderson took leaves of absence to work with government departments: first with the Department of Finance in Saskatchewan, and later with the Ministry of Finance and Planning in Kenya. In 1980/81 he spent a sabbatical leave in Australia as a Visiting Fellow, Centre for Resource and Environmental Studies, Australian National University. In 1984 he assumed his current position as Executive Director of the Centre for Resource Studies. Dr. Anderson also holds the position of Adjunct Professor in the School of Public Administration, Queen's University.

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